

1/35

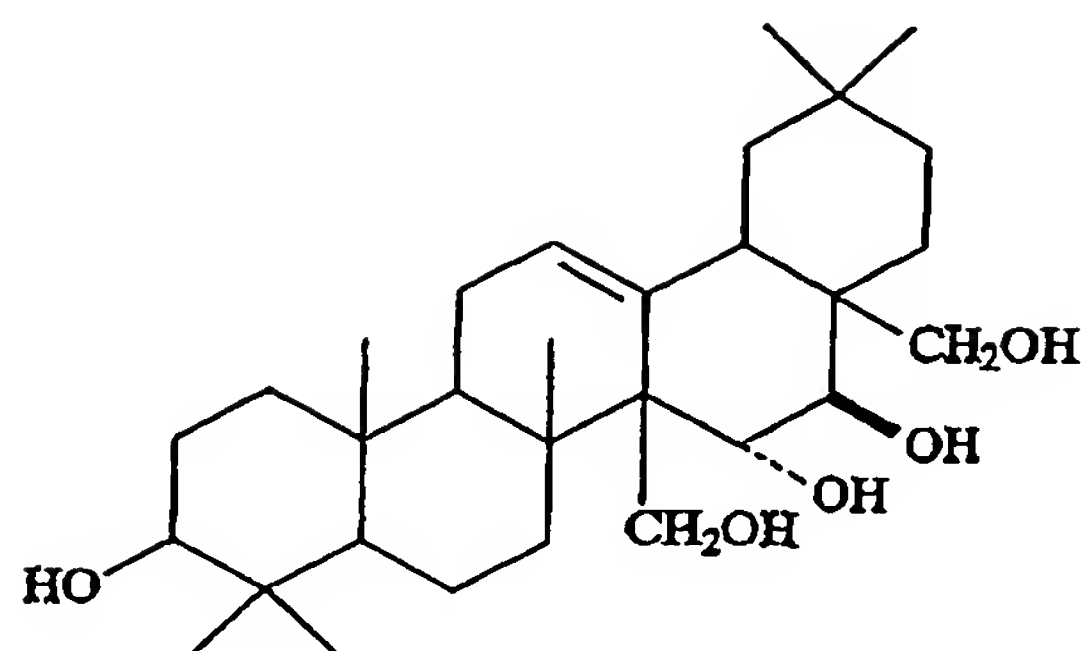


FIG 1. A₁-Barringenol

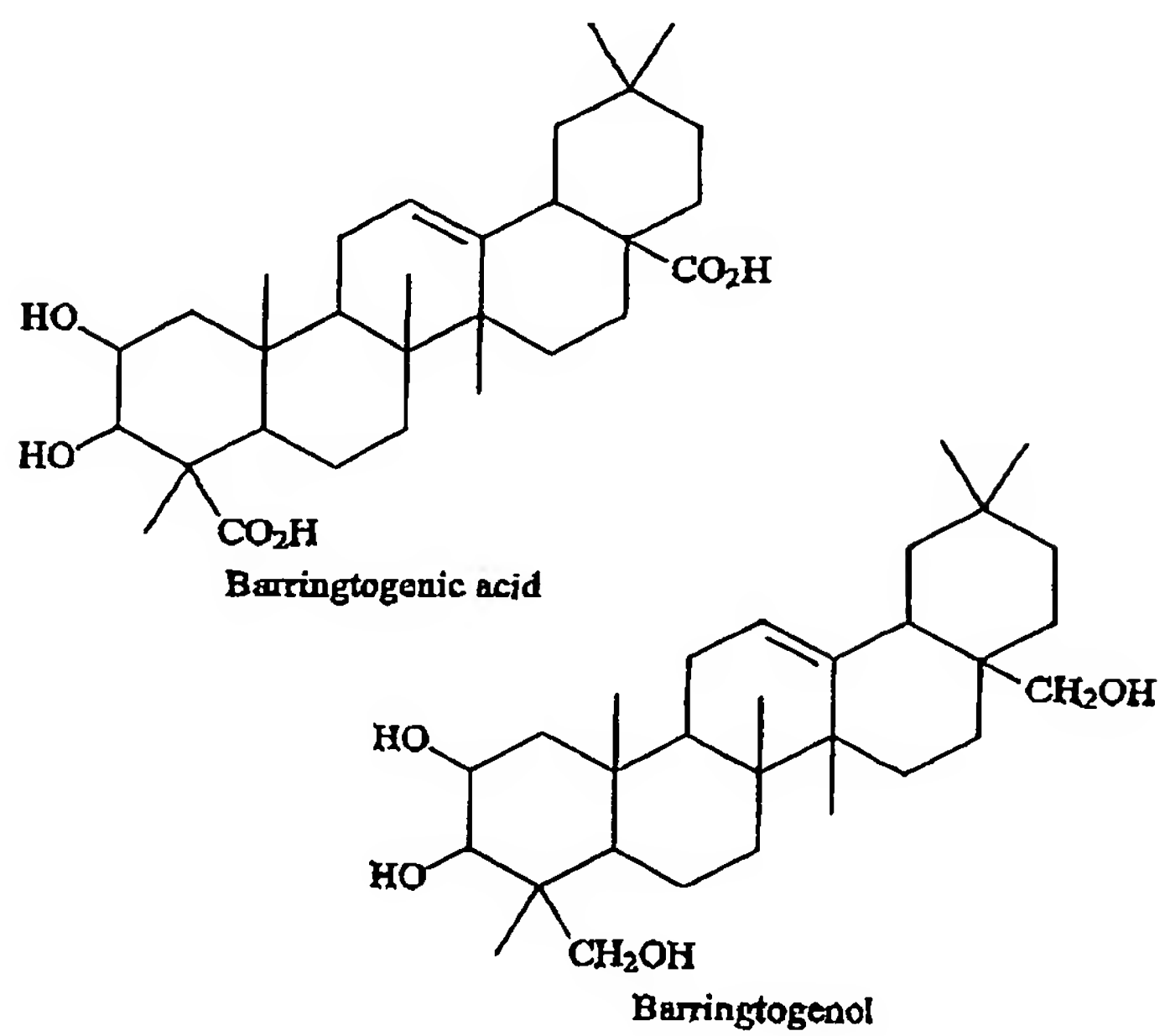


FIG 2. The structure of barringtogenic acid and barringtogenol

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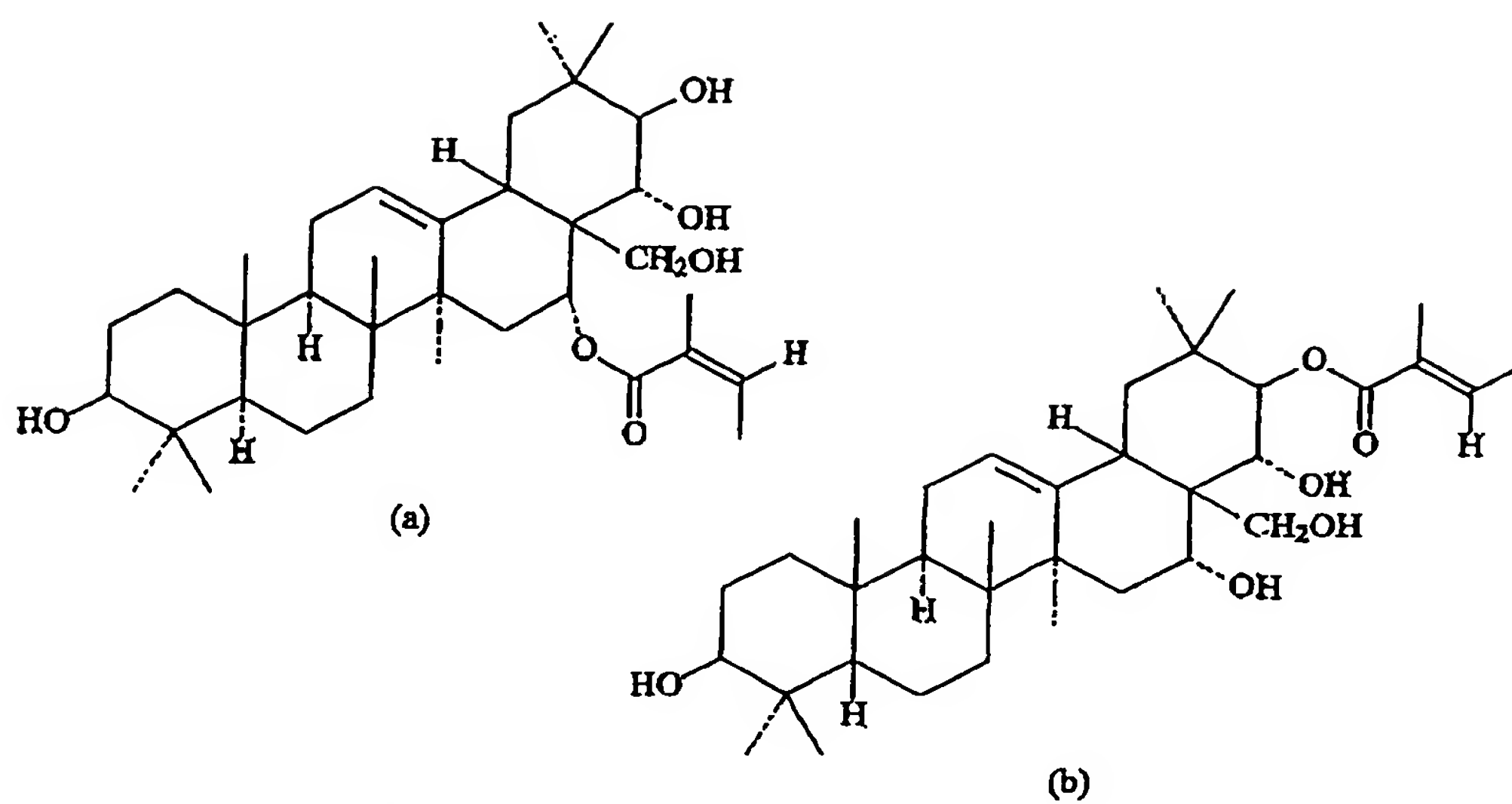


FIG 3 (a) Initial and (b) revised structures of barringtogenol B

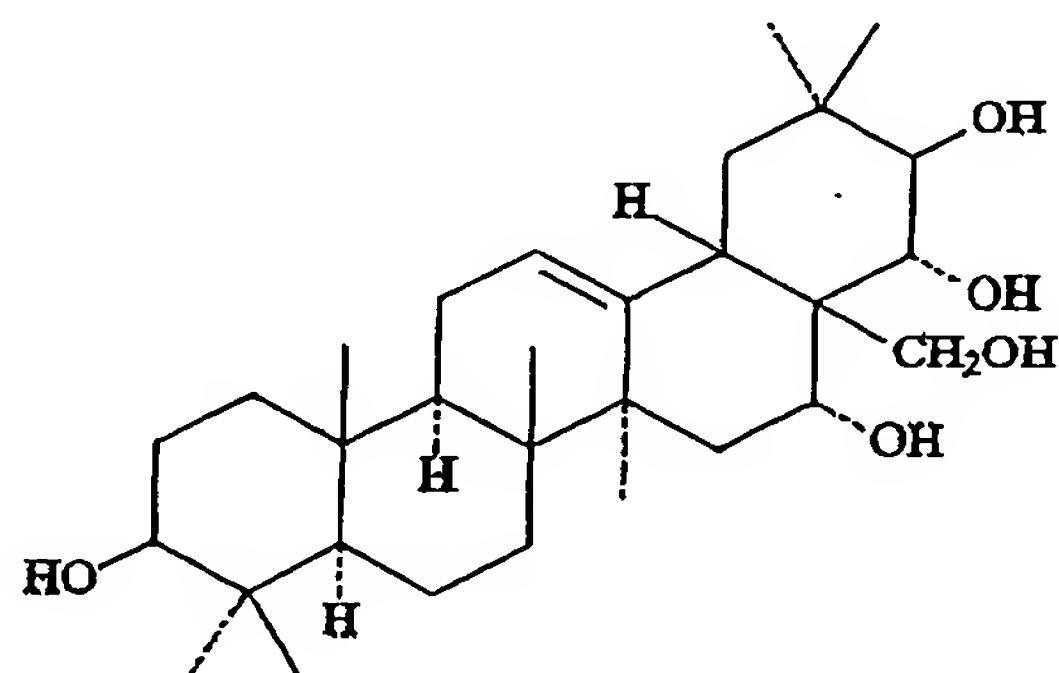


FIG 4 Barringtogenol C

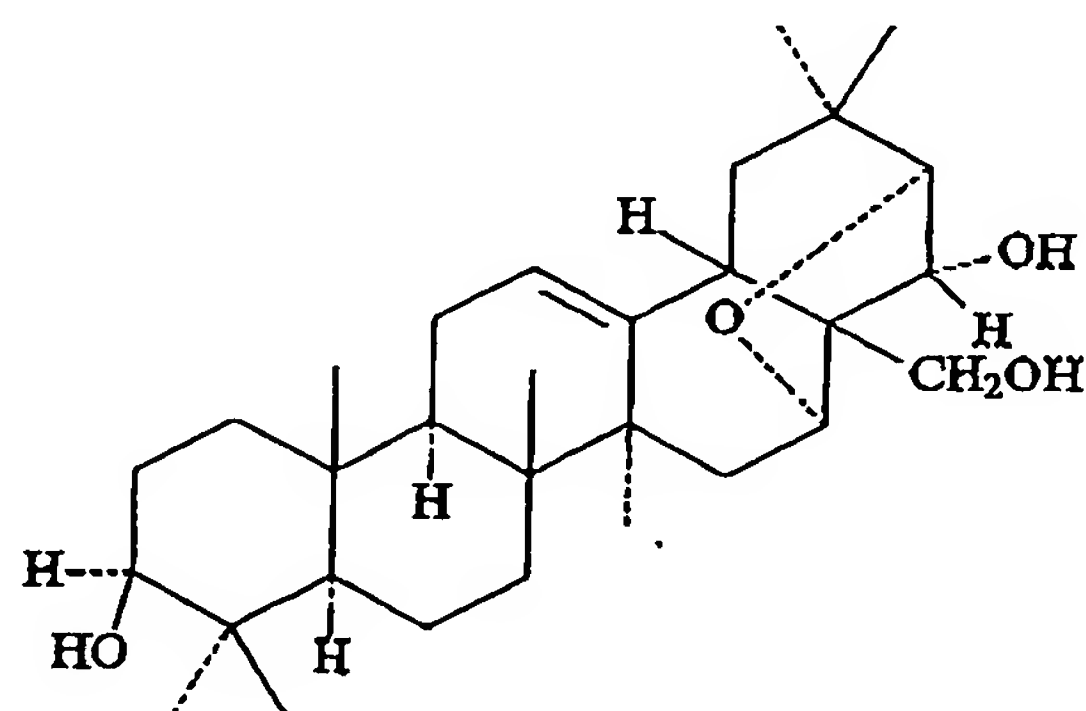


FIG 5 ~ Barringtogenol D

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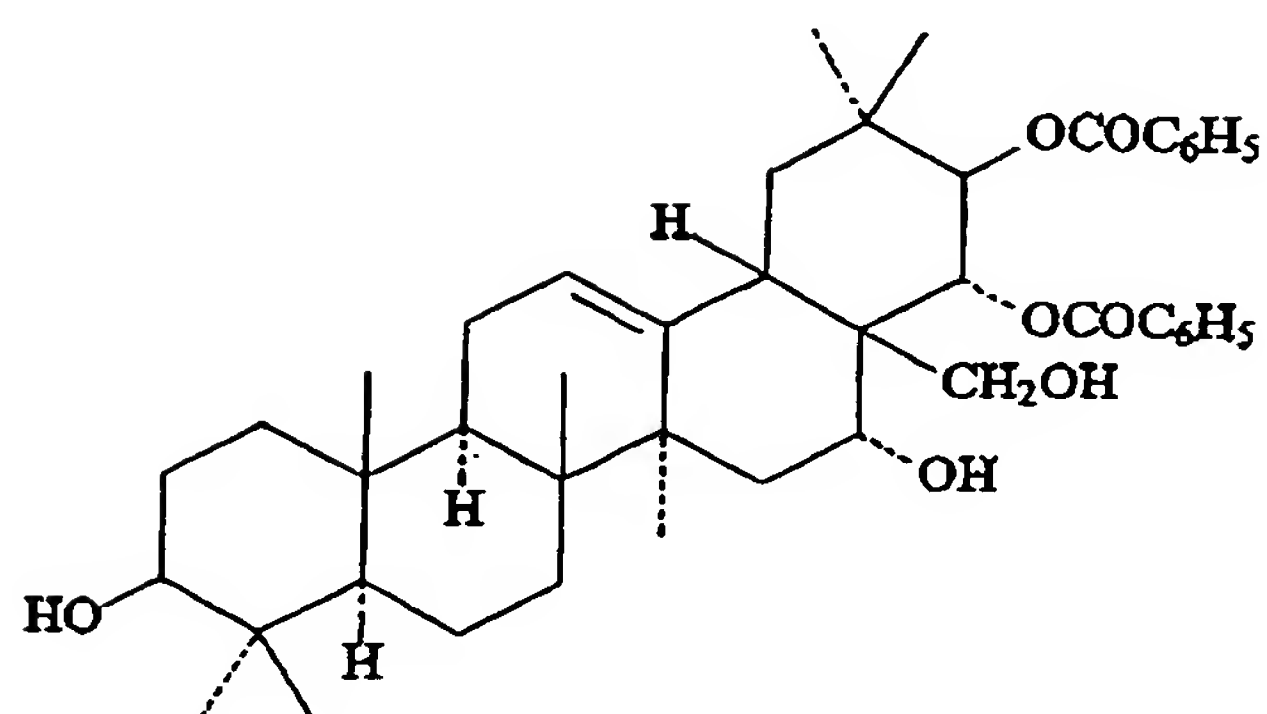
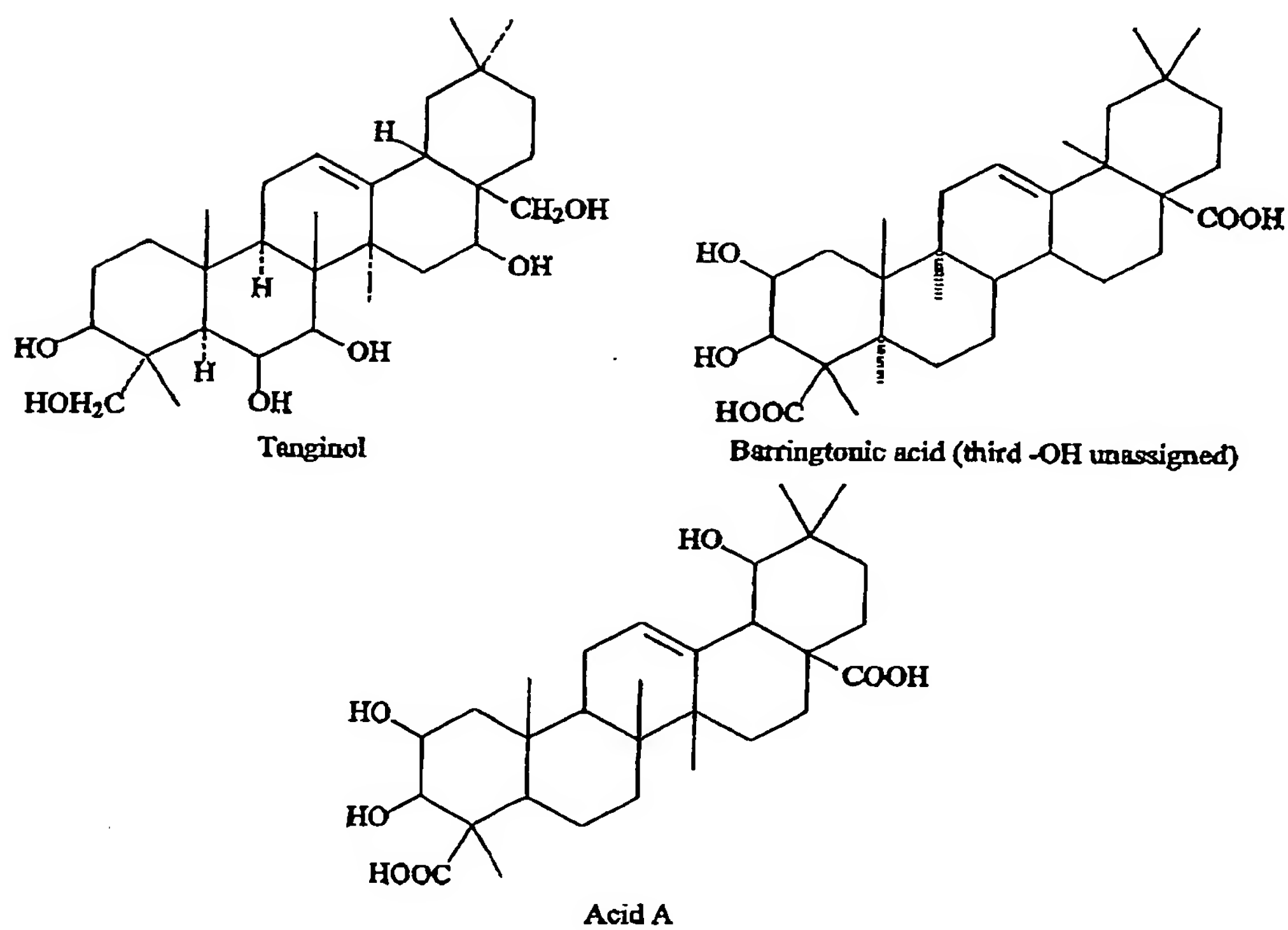


FIG 6 – Barringtonol E

FIG 7 – Compounds from *B. acutangula*

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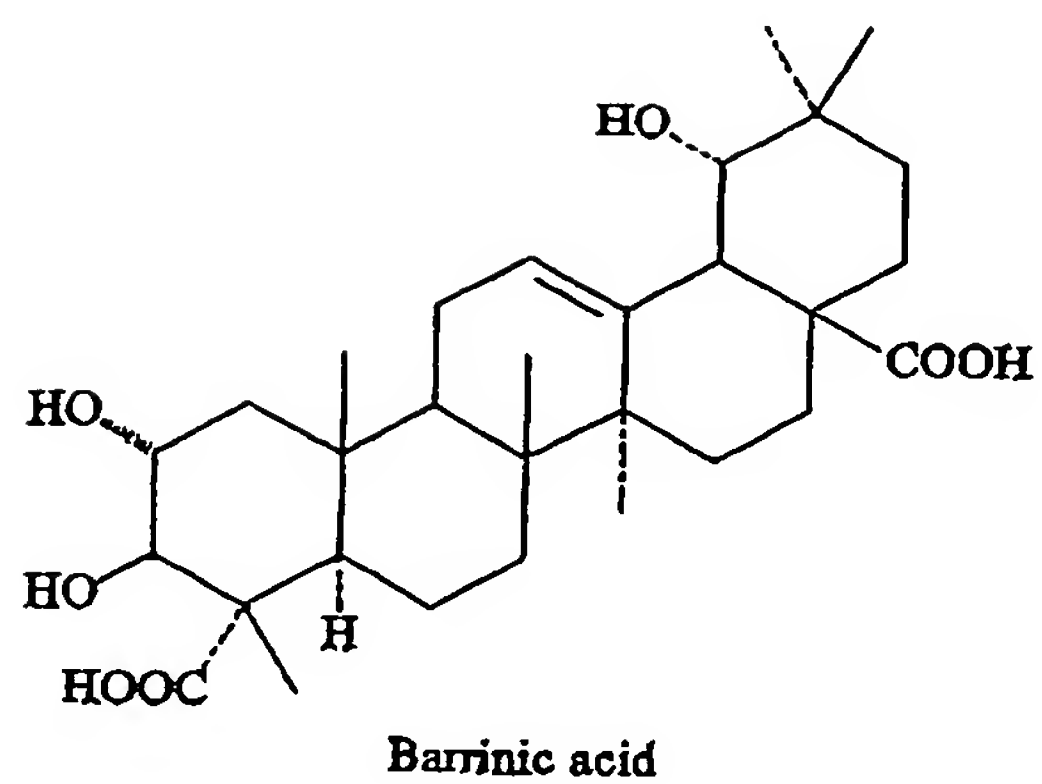
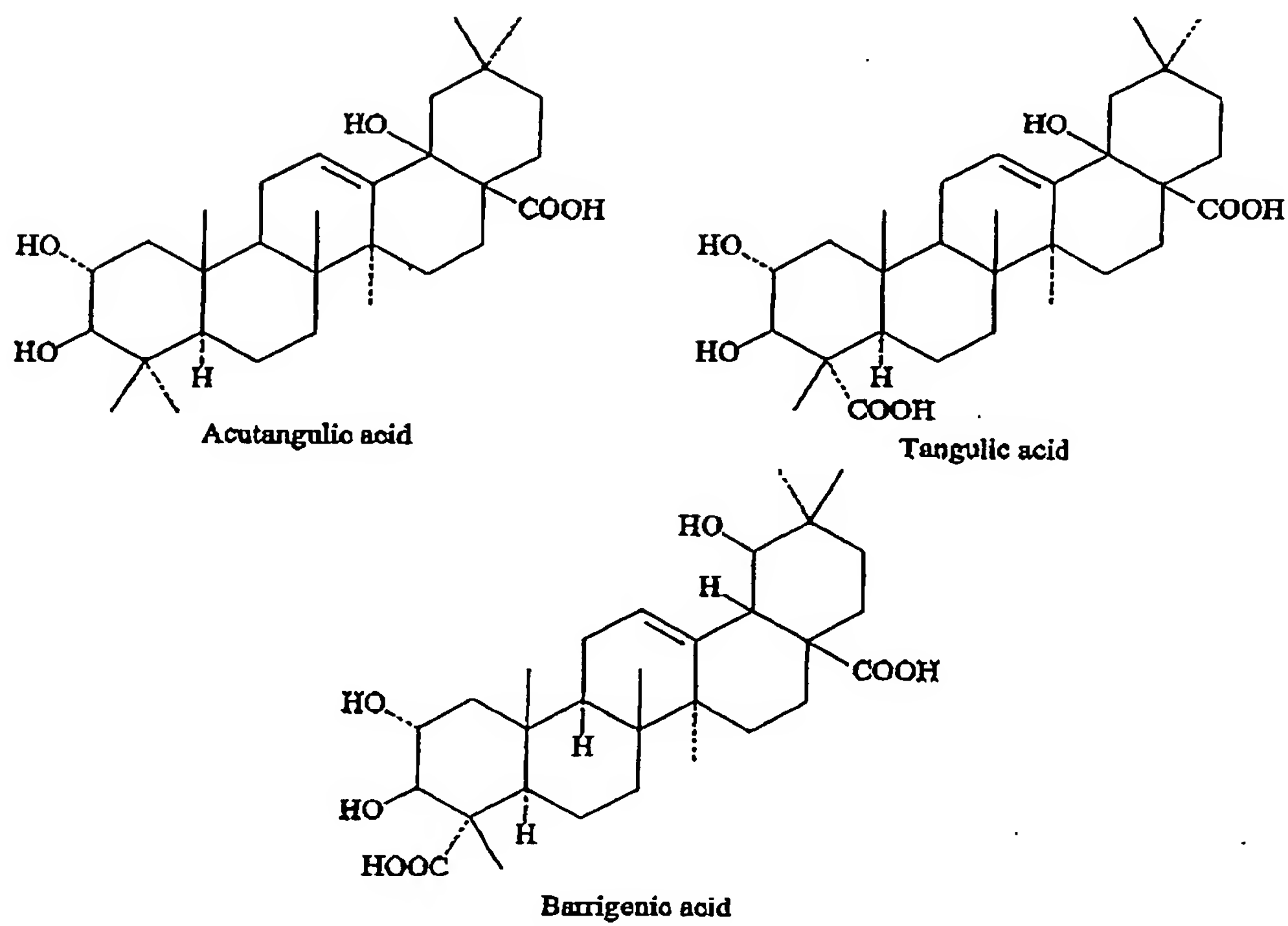


FIG 8. Barrinic acid

FIG 9 – Compounds from *B. acutangula*

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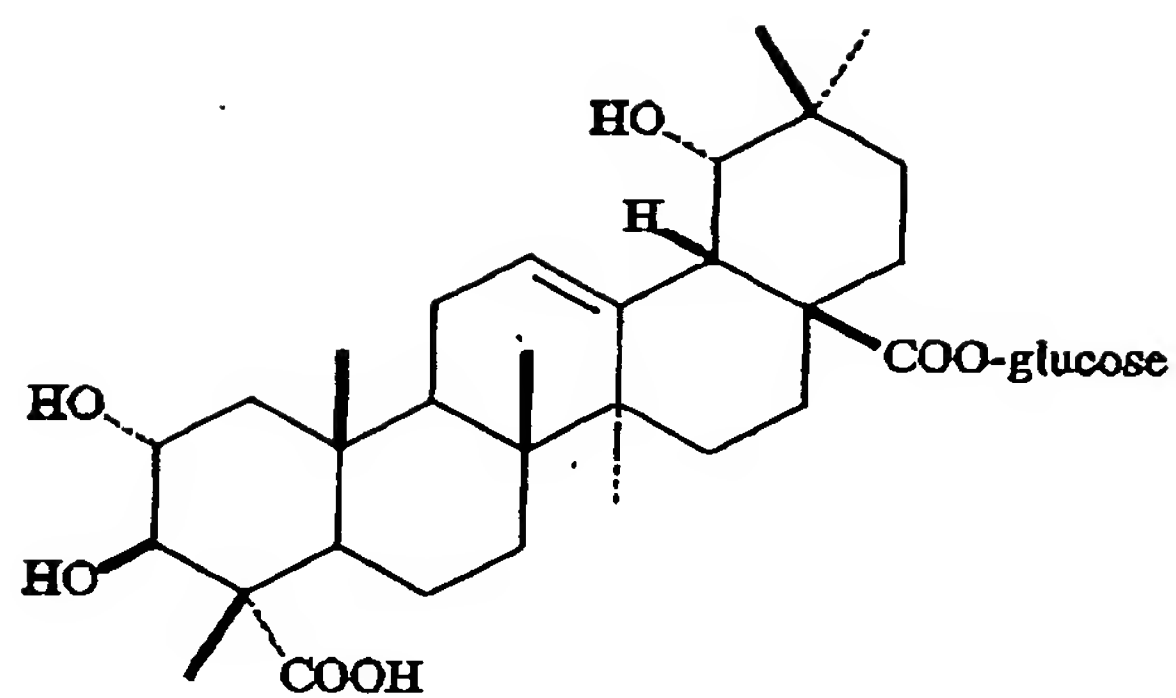
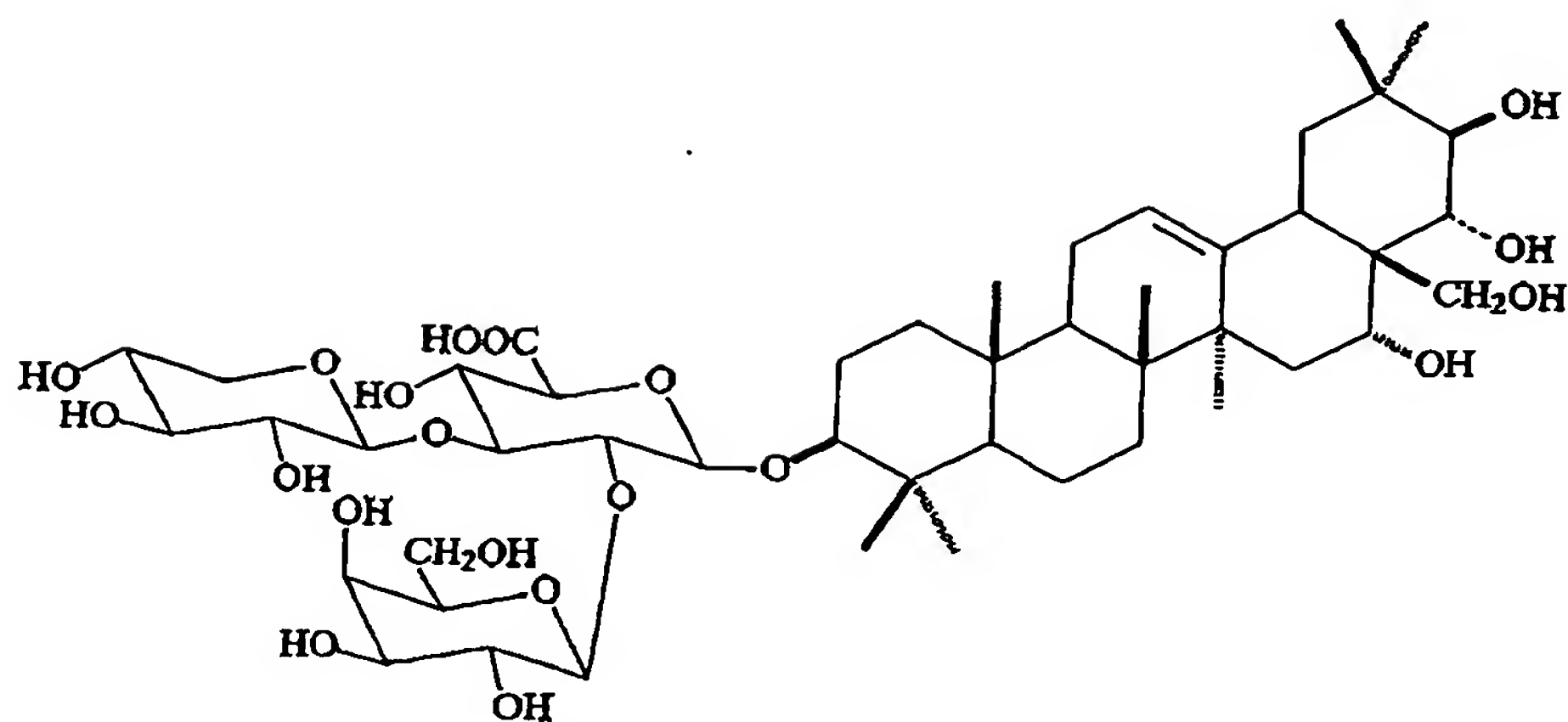
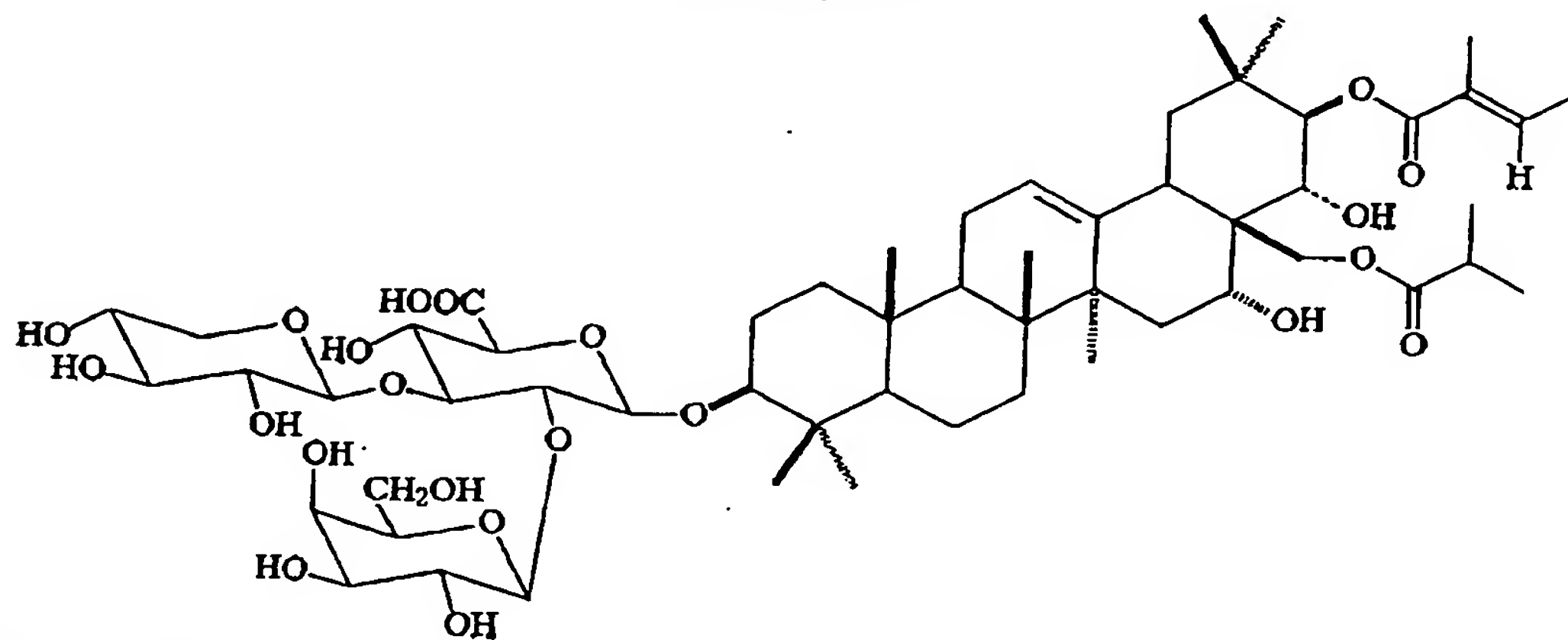


FIG 10 - 2 α ,3 β ,19 α -trihydroxy-olean-12-ene-dioic acid 28-O- β -D-glucopyranoside from the seeds of *B. acutangula*

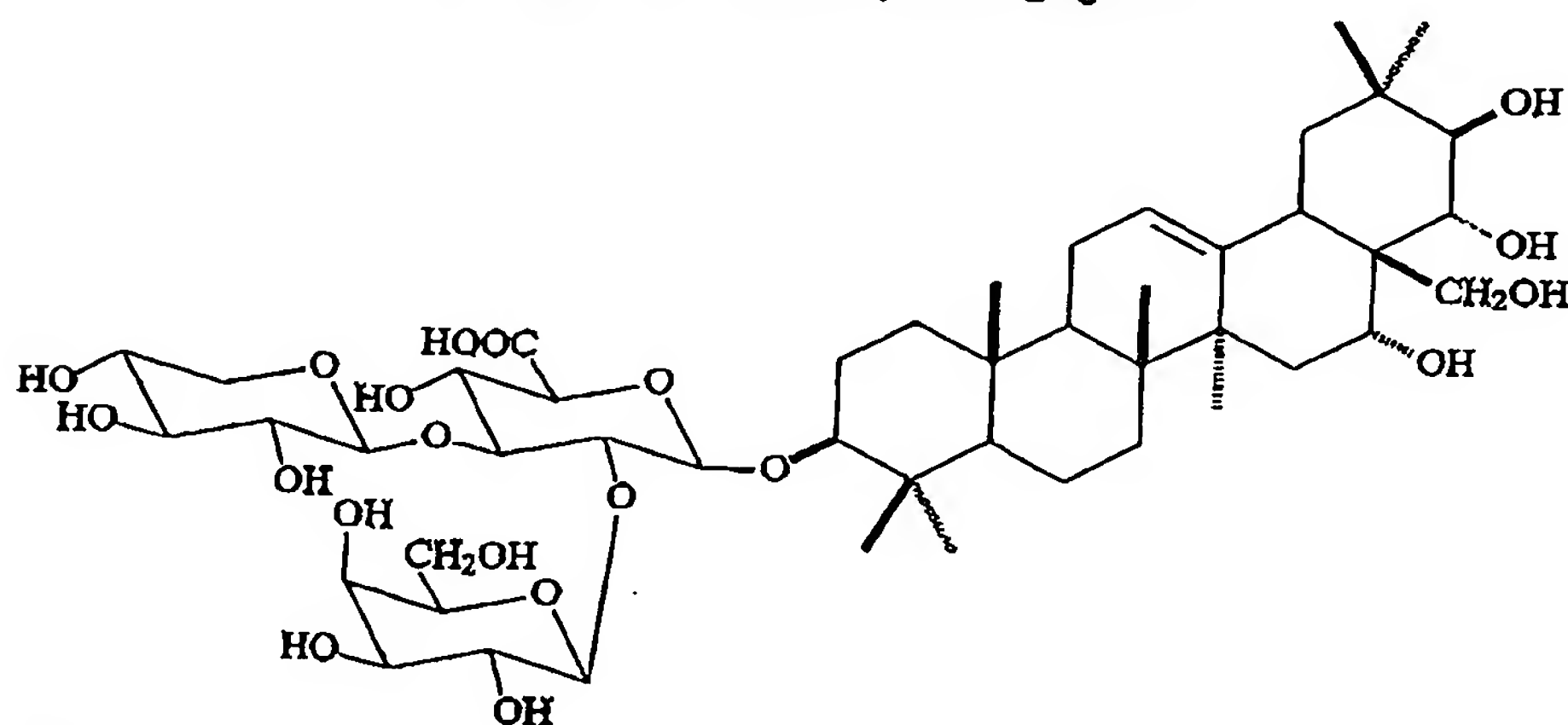
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Barringtonoside A = 3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl barringtogenol C



Barringtonoside B = 3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-tigloyl-28-O-isobutyryl barringtogenol C



Barringtonoside C = 3-O- α -L-arabinopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl barringtogenol C

FIG 11

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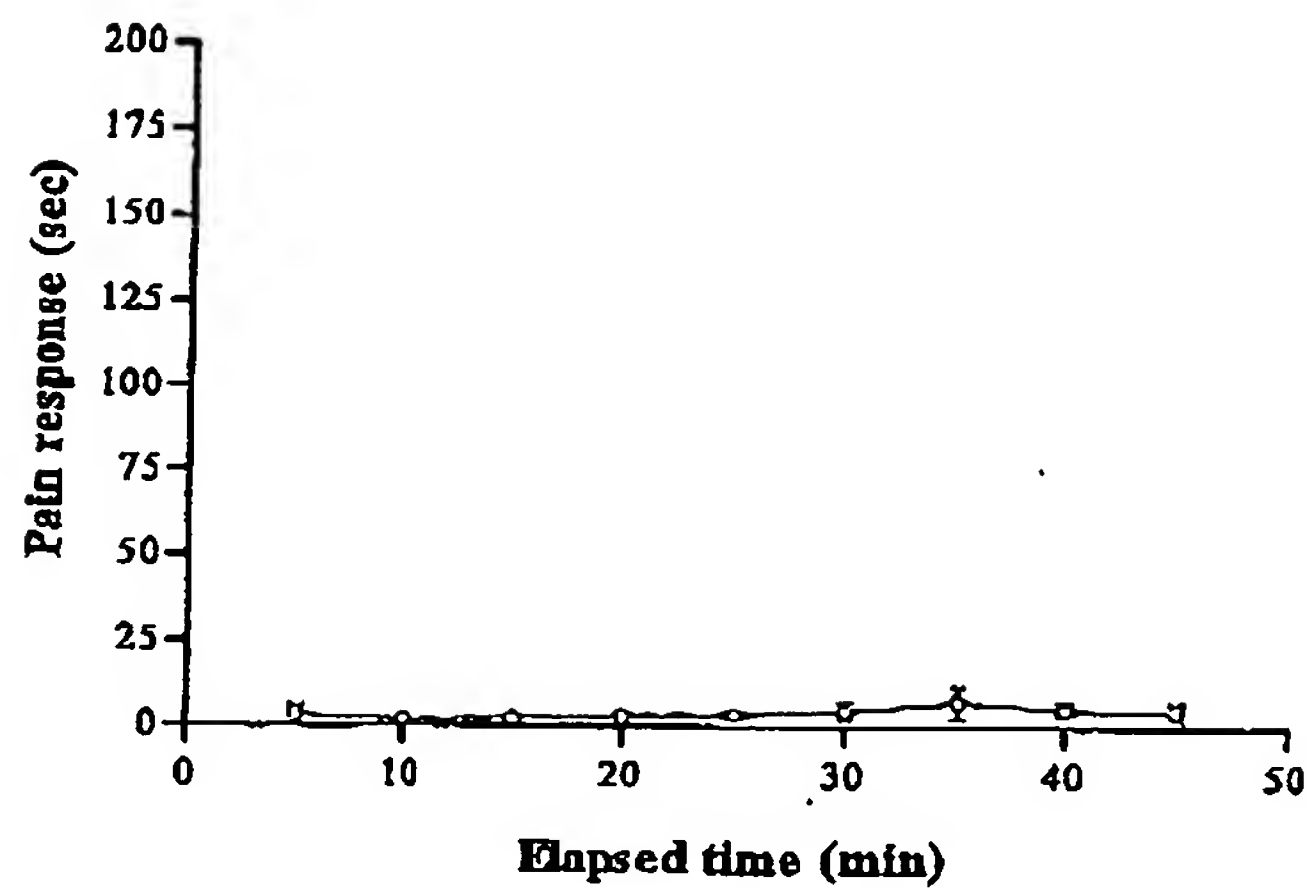


FIG 12 - Normal grooming response ($\bar{x} \pm S.E.$; $n = 6$).

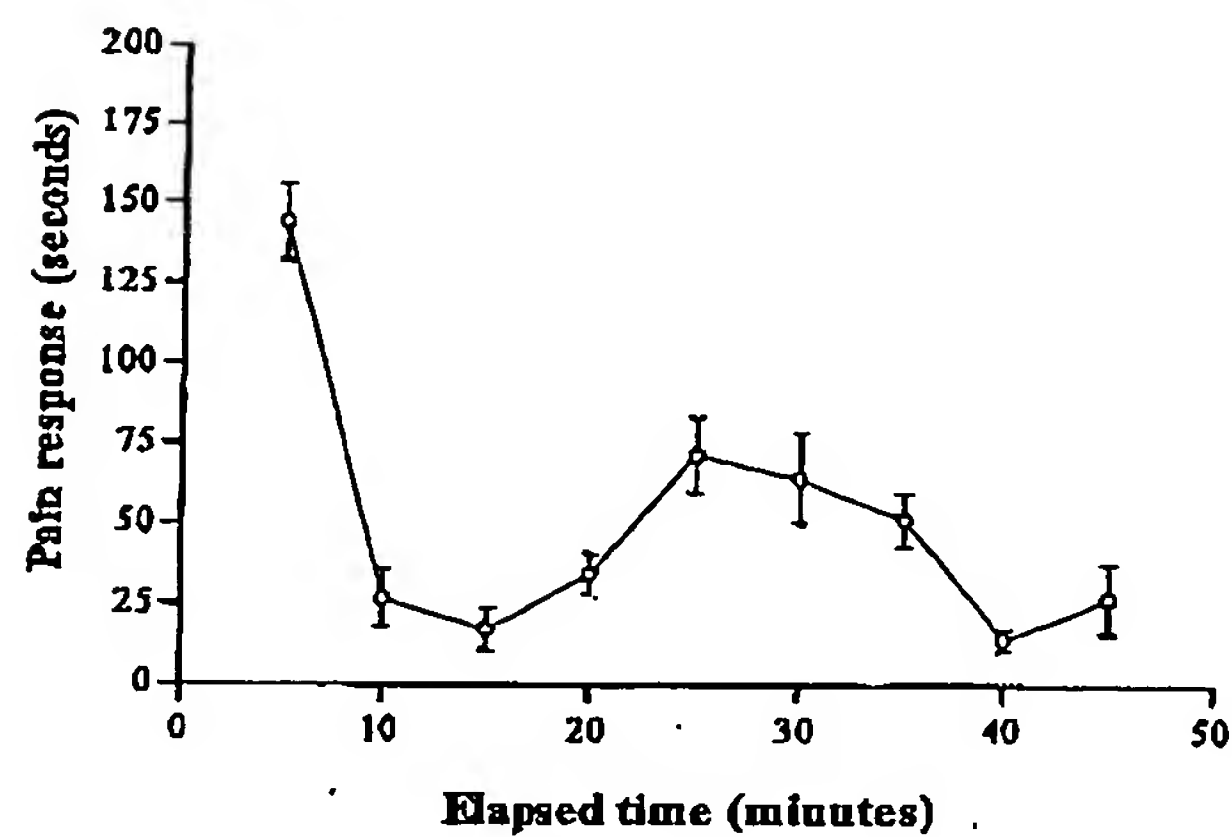


FIG 13 - Control values ($\bar{x} \pm S.E.$; $n = 18$).

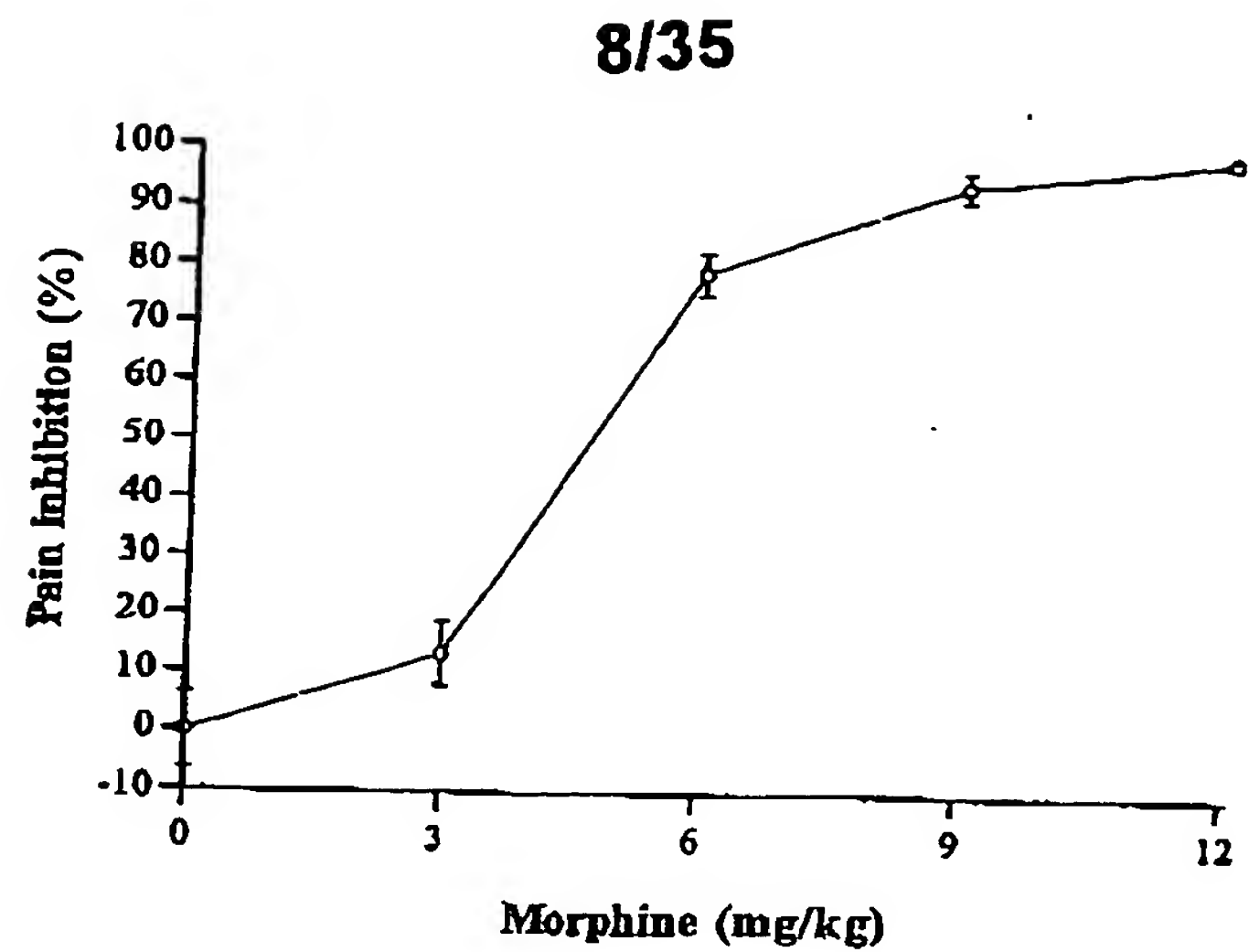


FIG 14 - Dose response curve for morphine ($\bar{x} \pm S.E.$; $n = 6(\text{min})$).

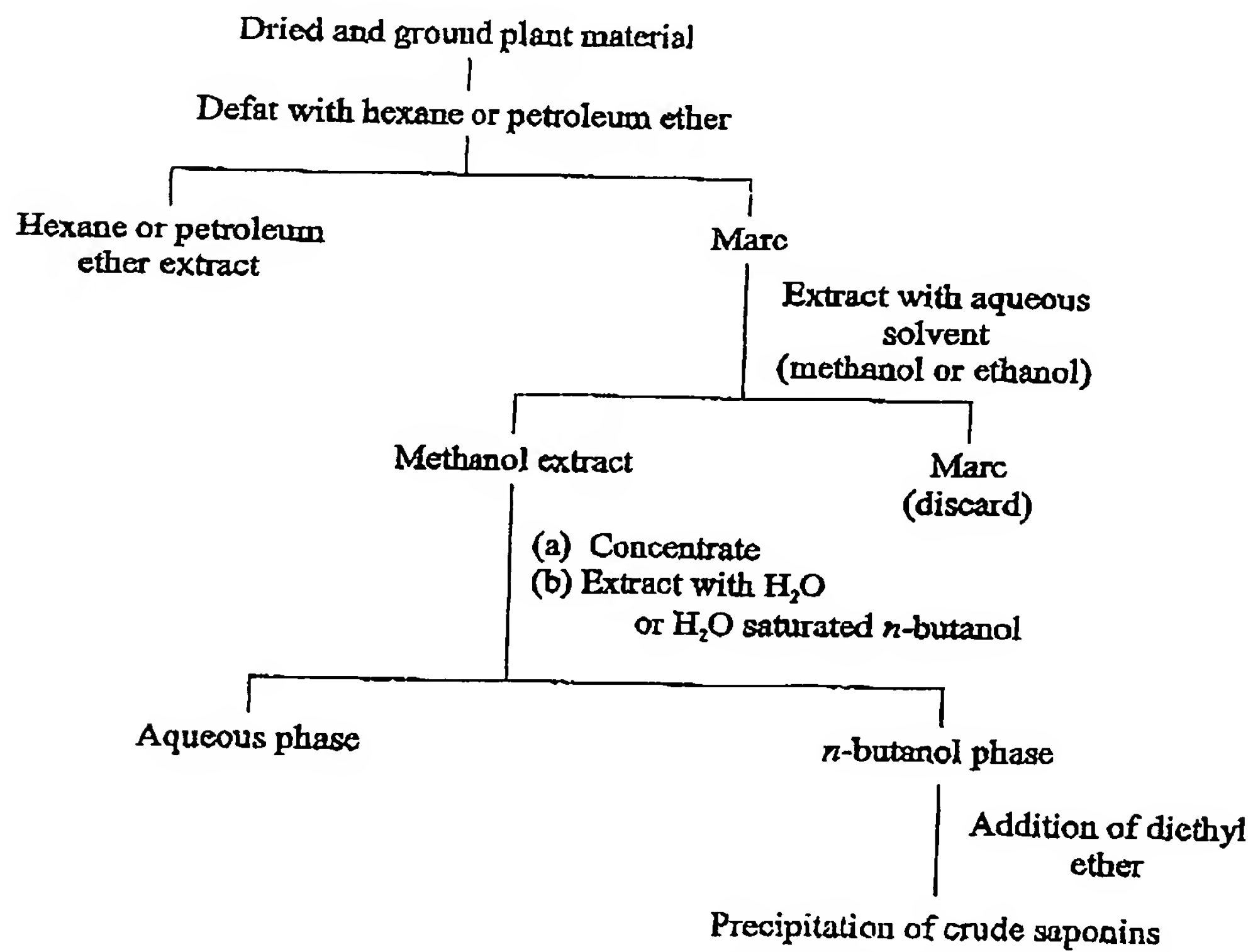


FIG 15 - Schematic for the preparation of crude saponin mixtures.

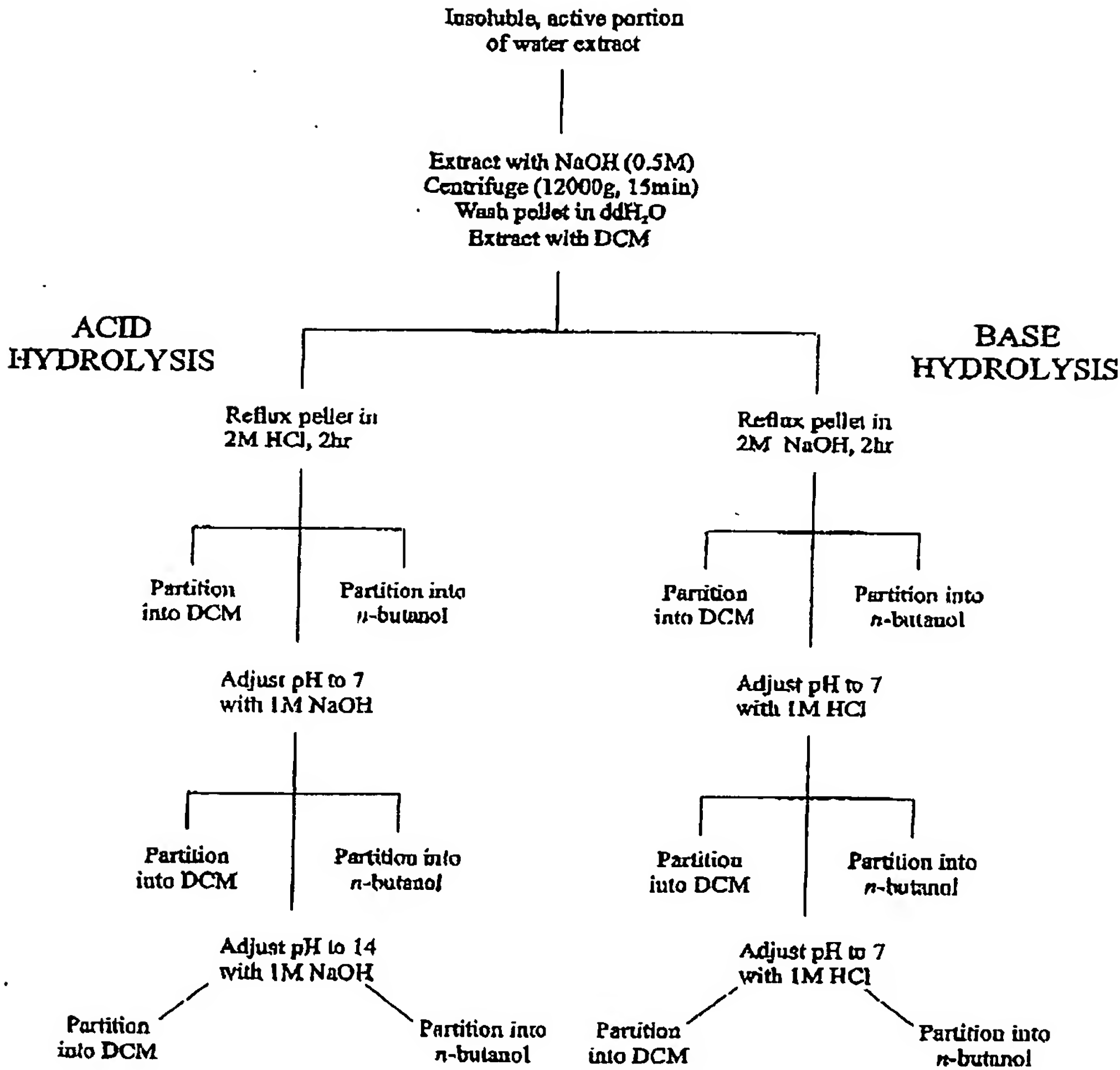


FIG 16 - Acid and base hydrolysis scheme.

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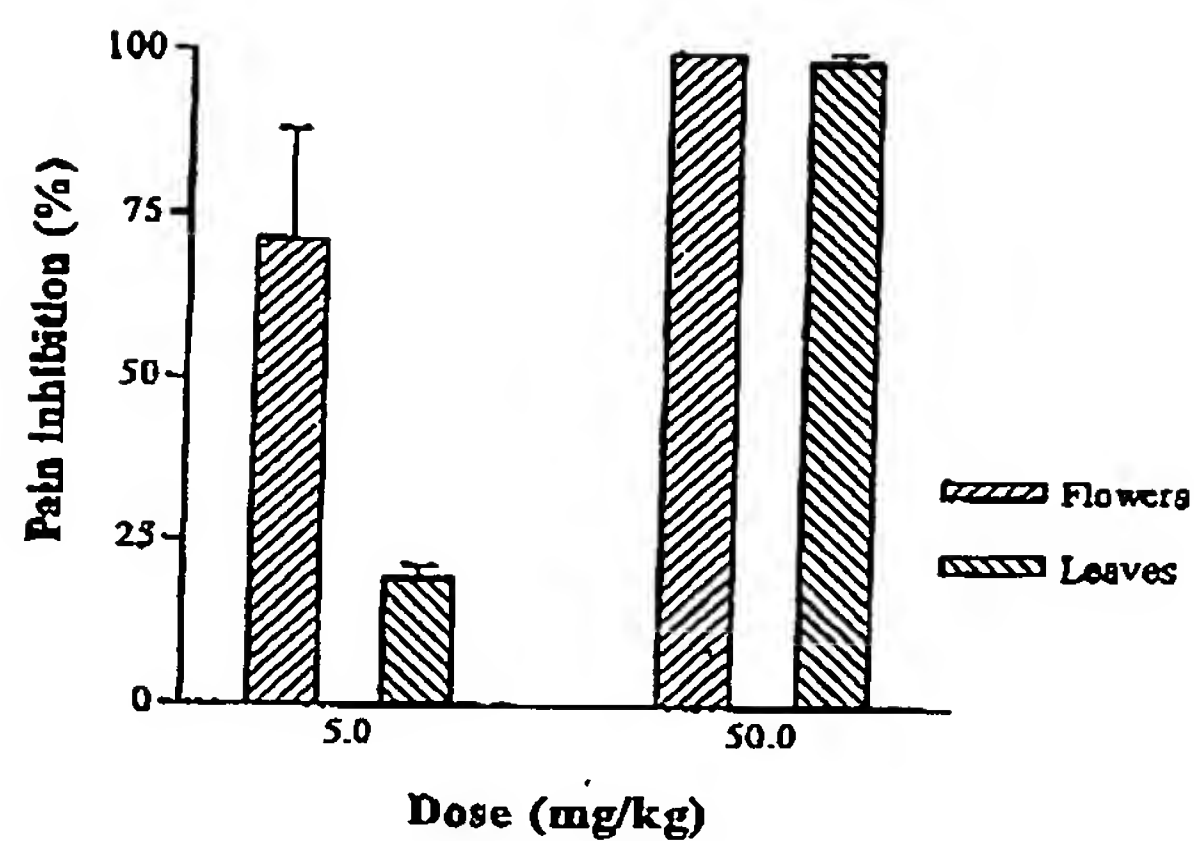


FIG 17 - Analgesic activity of water extract of flowers and leaves of *B. acutangula* ($\bar{x} \pm SE$, $n=2$).

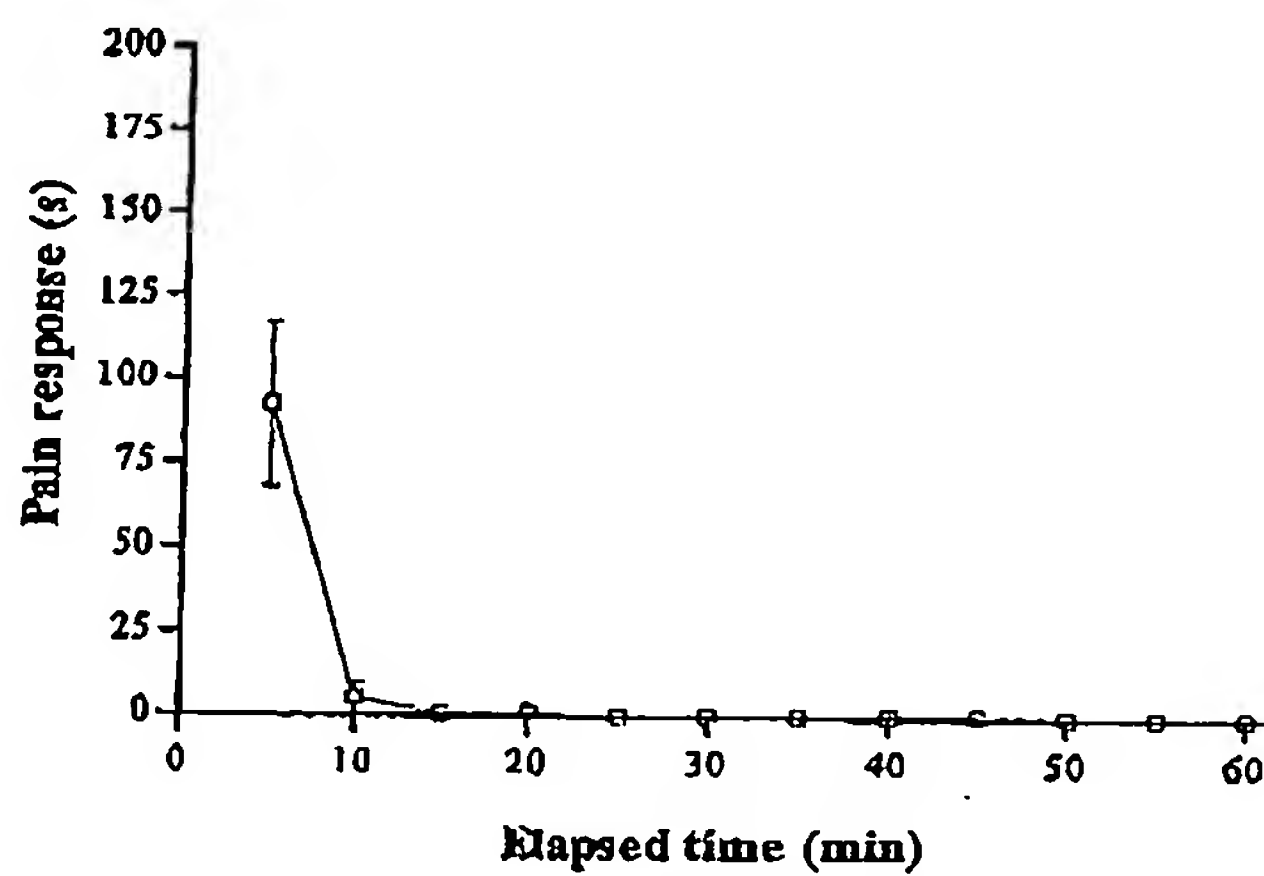


FIG 18 - Analgesic activity of crude water extract ($\bar{x} \pm SE$, $n=5$).

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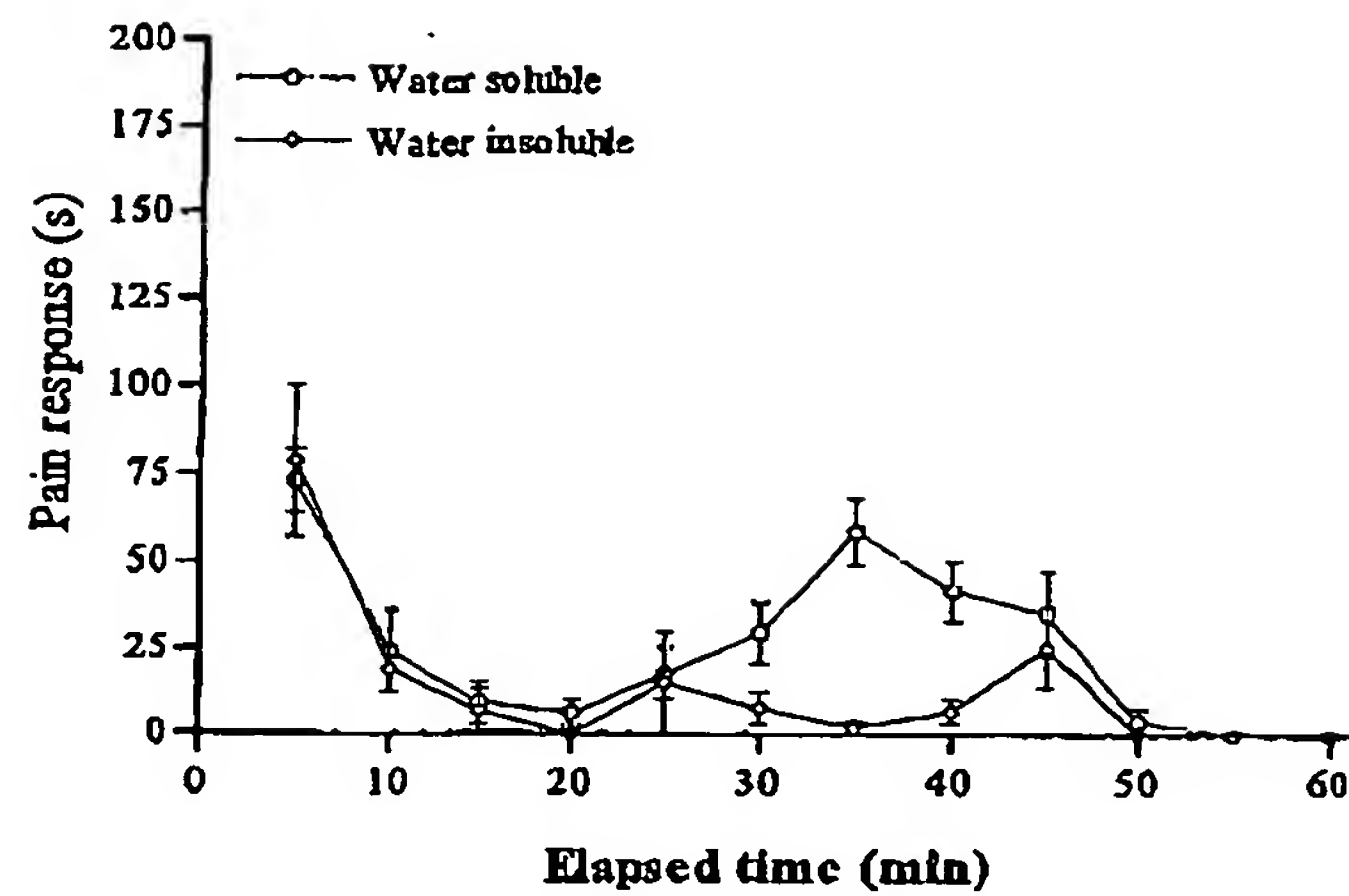


FIG 19 - Analgesic activity of crude water soluble (n=9) and insoluble (n=4) portions of the water extract ($\bar{x} \pm SE$).

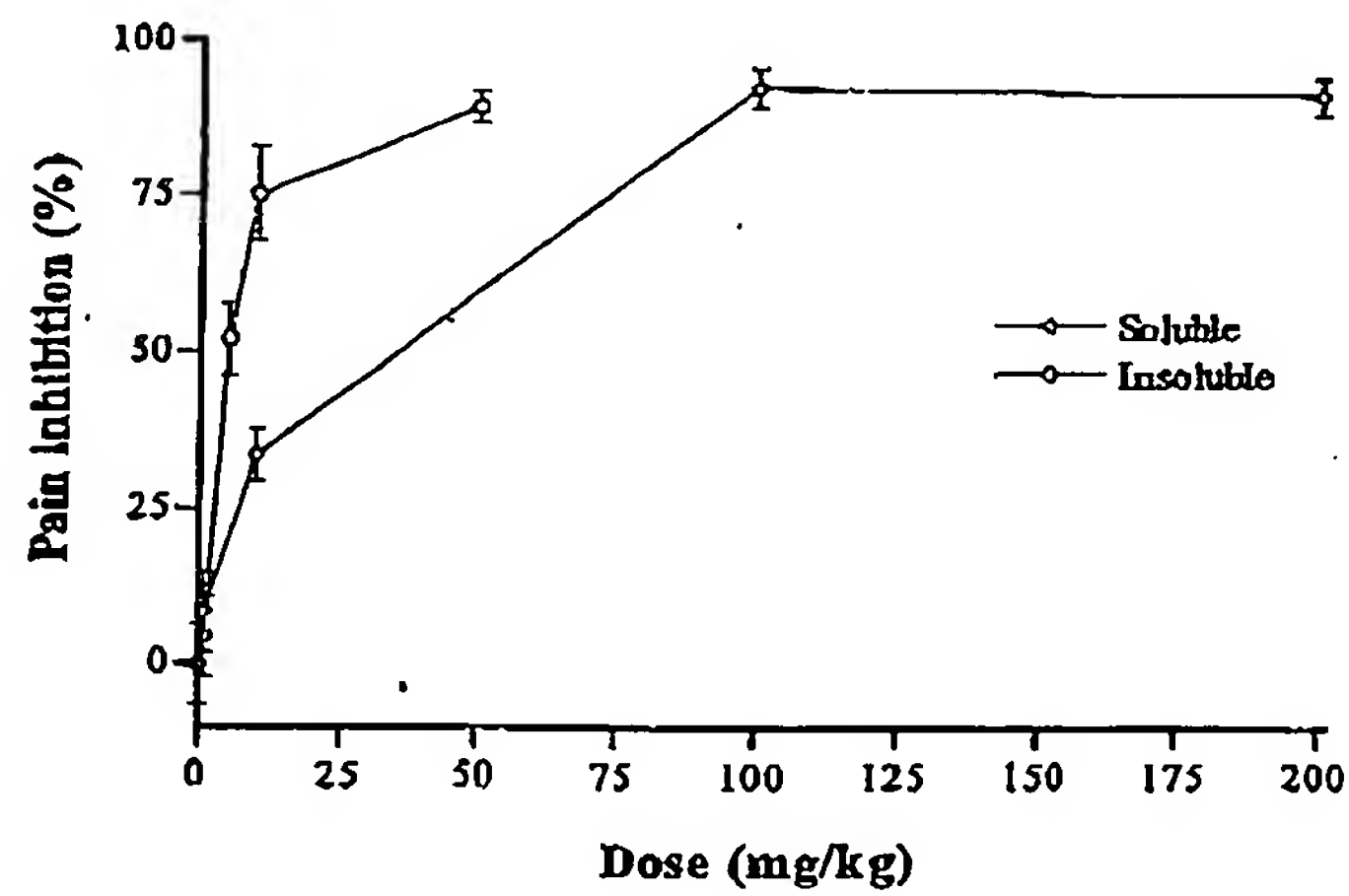


FIG 20 - Dose response curves for water extract ($\bar{x} \pm SE$, n=4).

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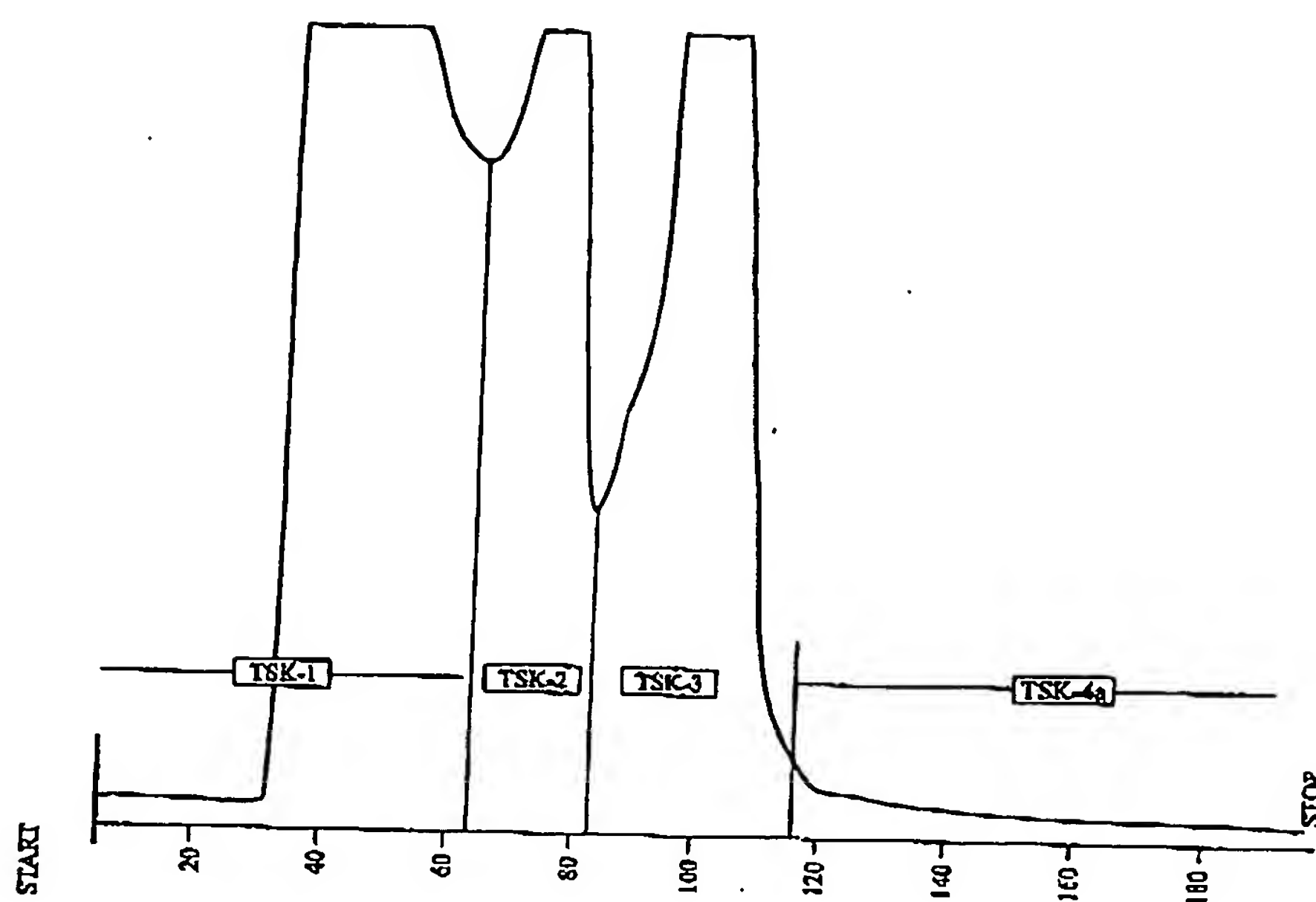
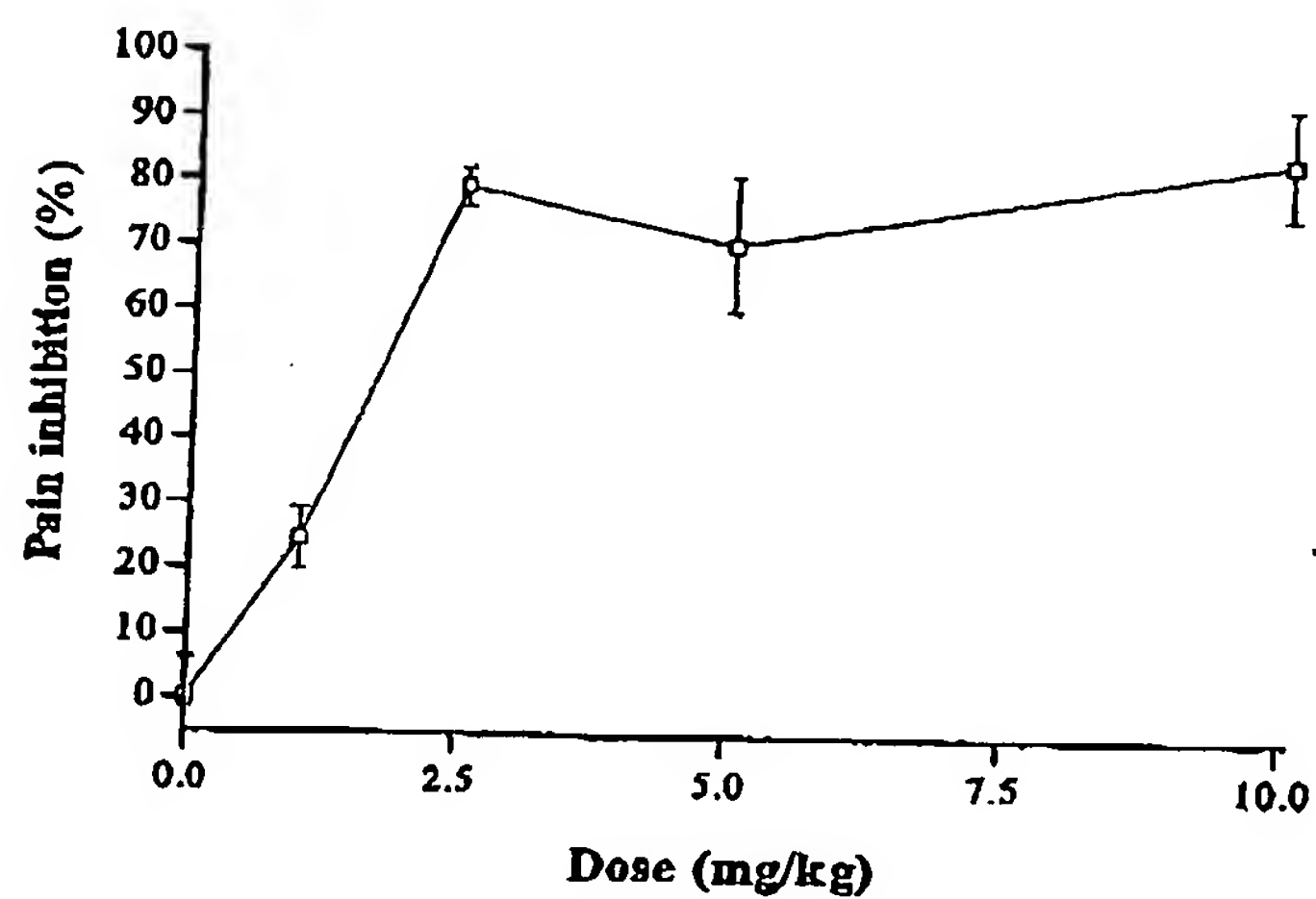


FIG 21 - Preparative gel permeation column.

FIG 22 - Dose response curve for TSK-4a ($\bar{x} \pm SE$, n=3).

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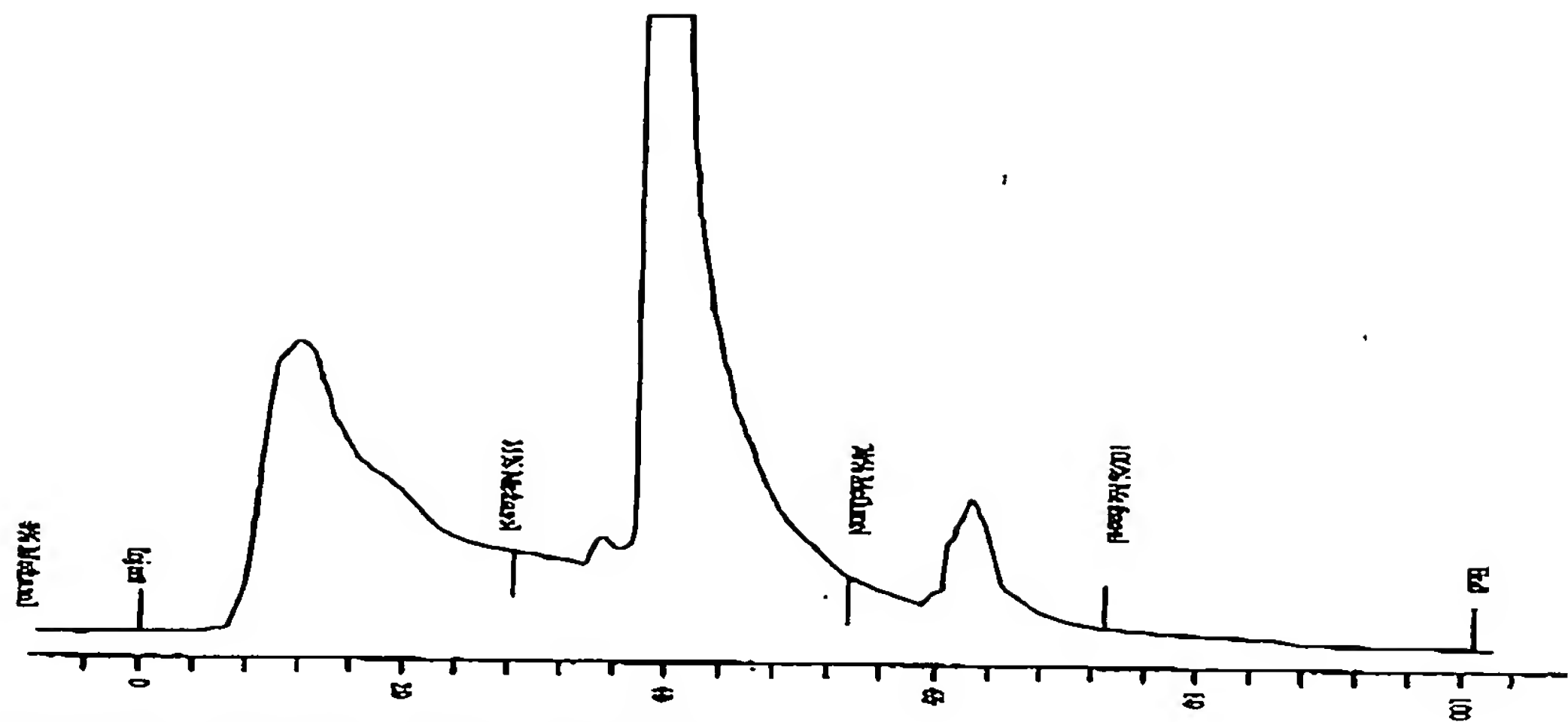


FIG 23 - C18 separation of TSK-4a.

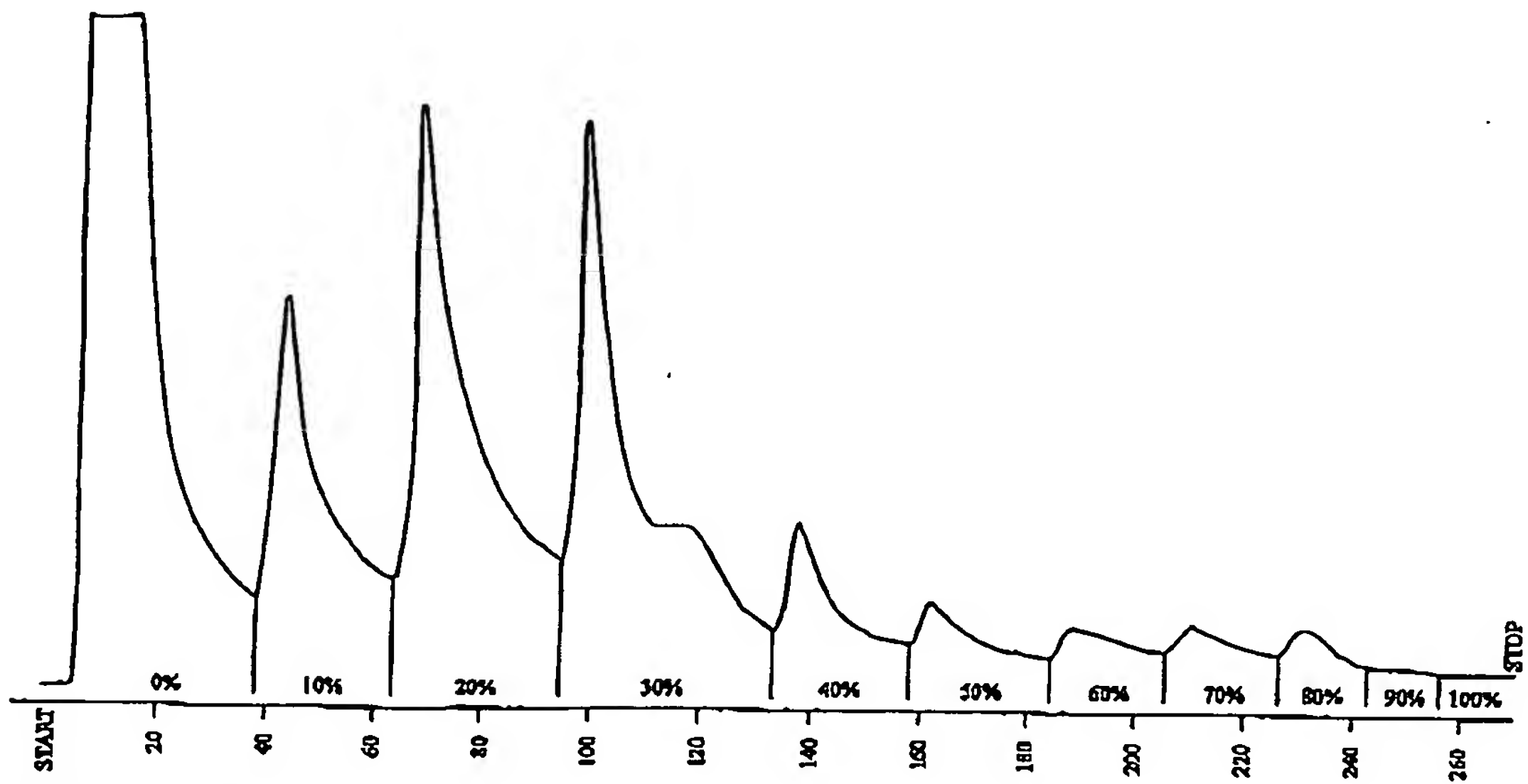


FIG 24 - C18 preparative separation of TSK-4a.

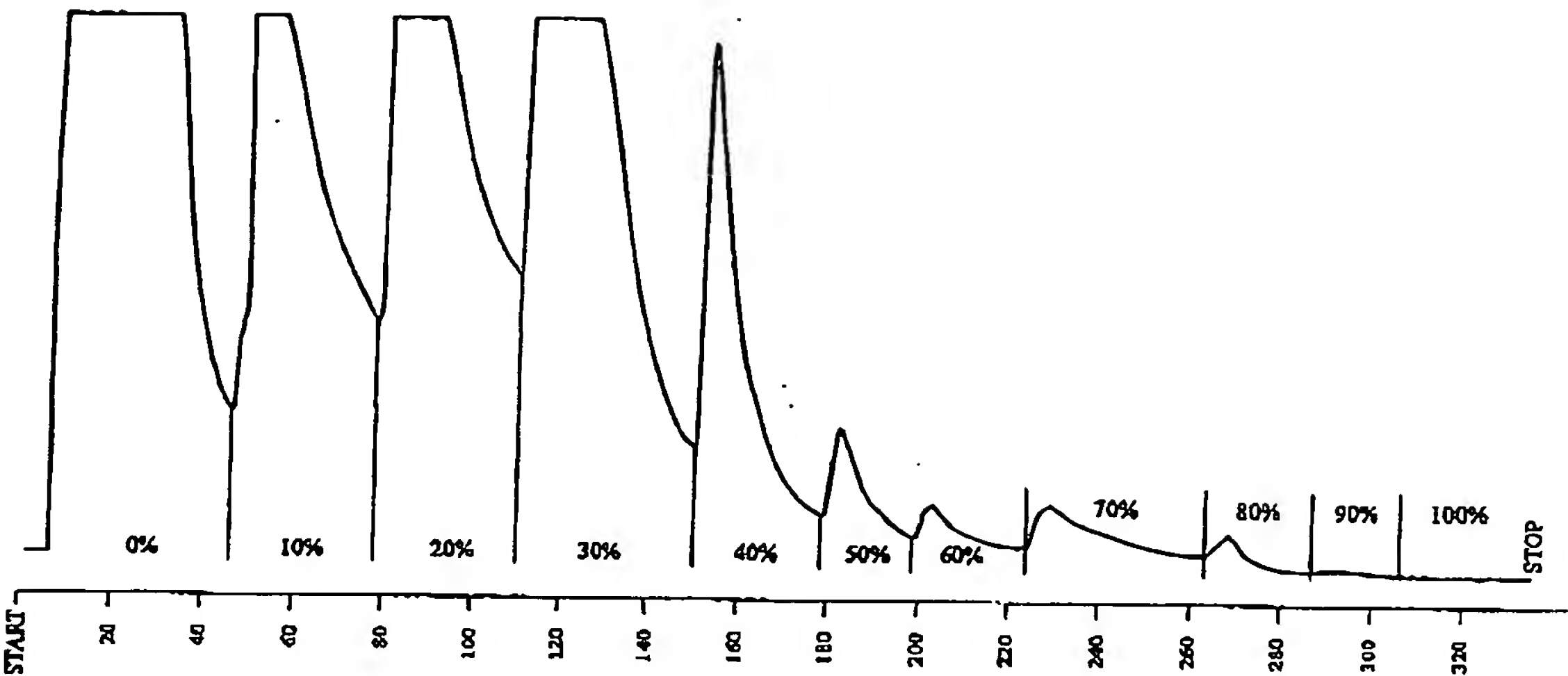


FIG 25 - Preparative C18 chromatogram of H₂O extract

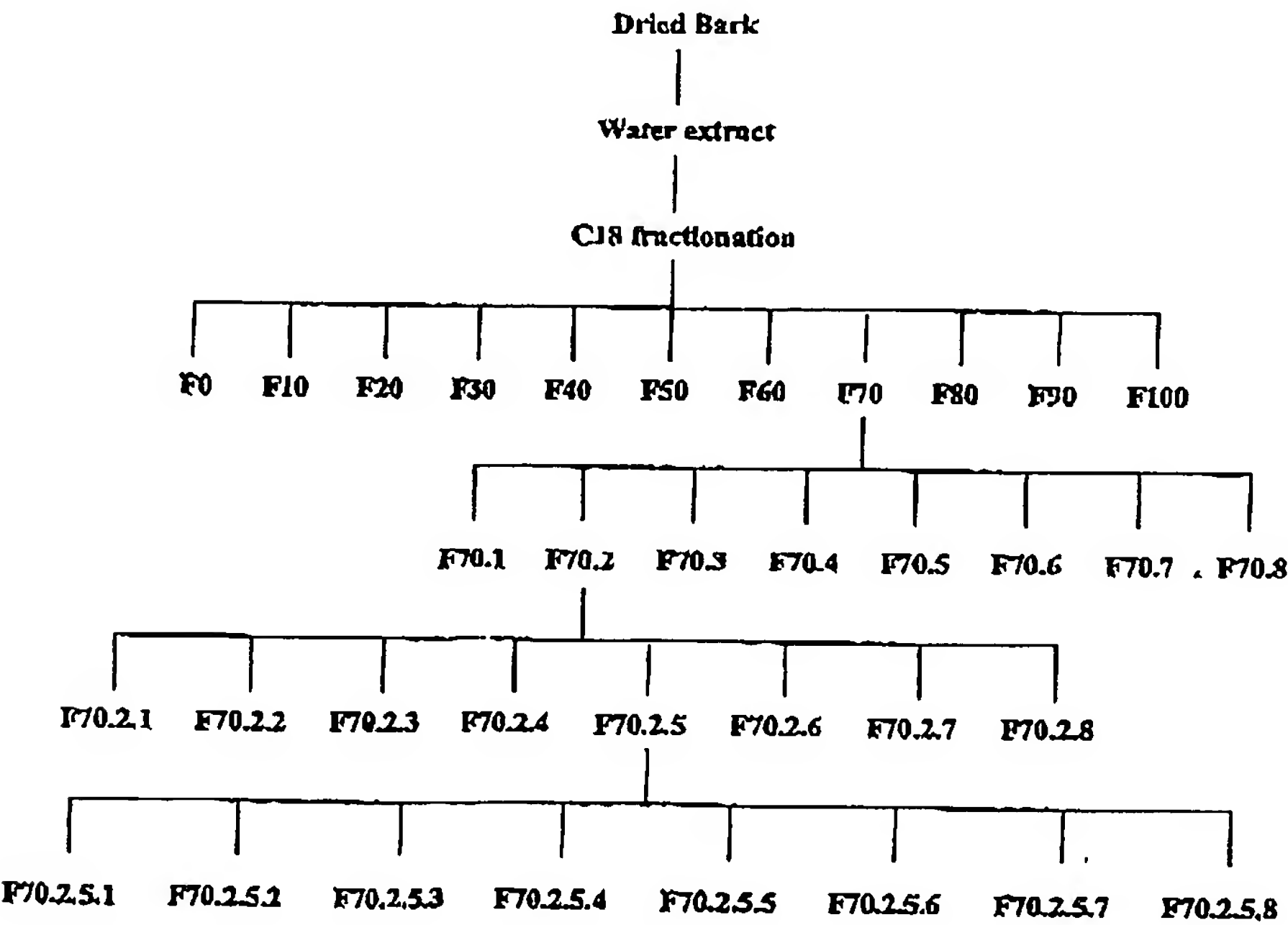
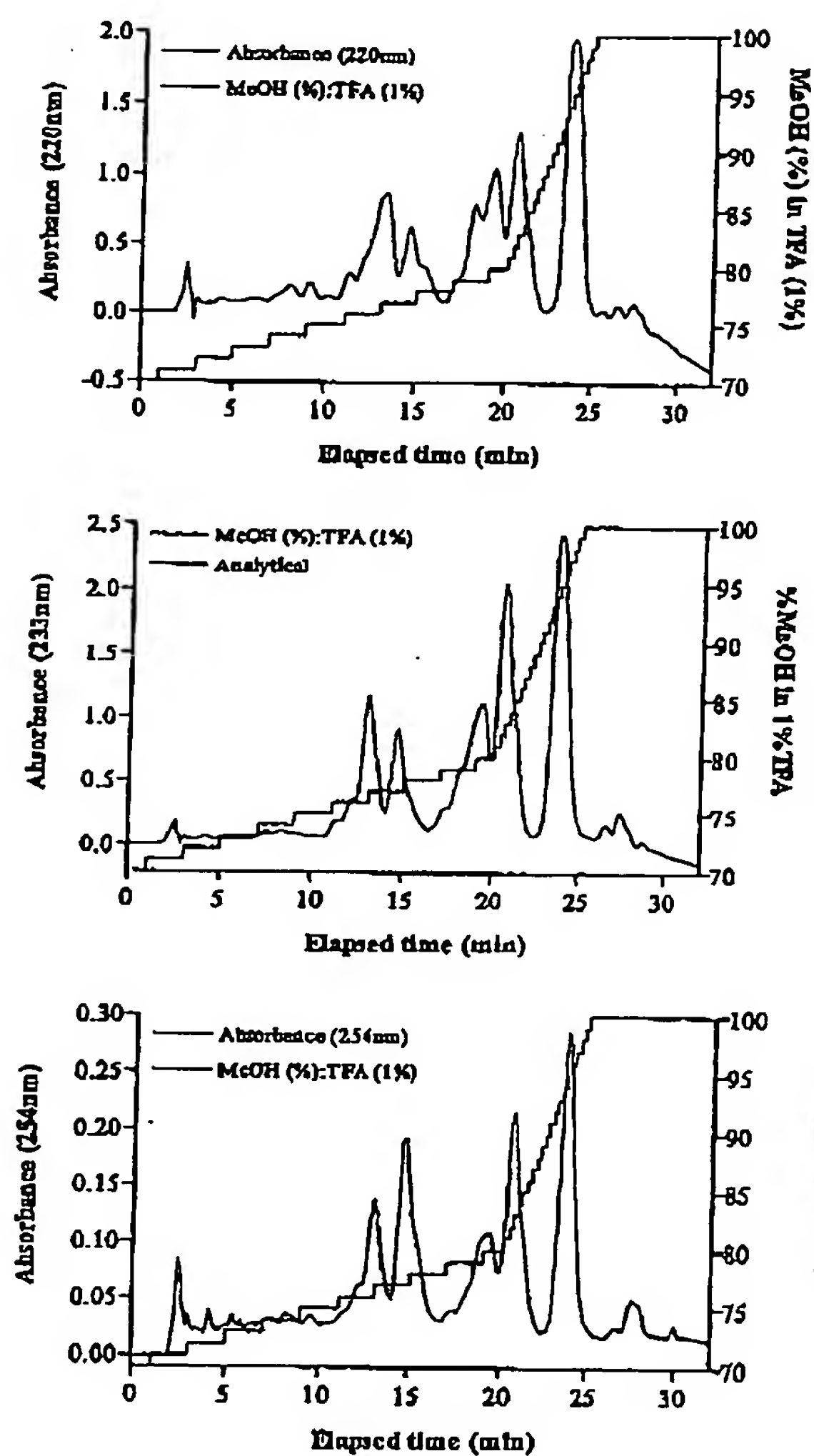


FIG 26 - Outline of numbering system compound F70.2.5.2.

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Analytical separations



Preparatory separations

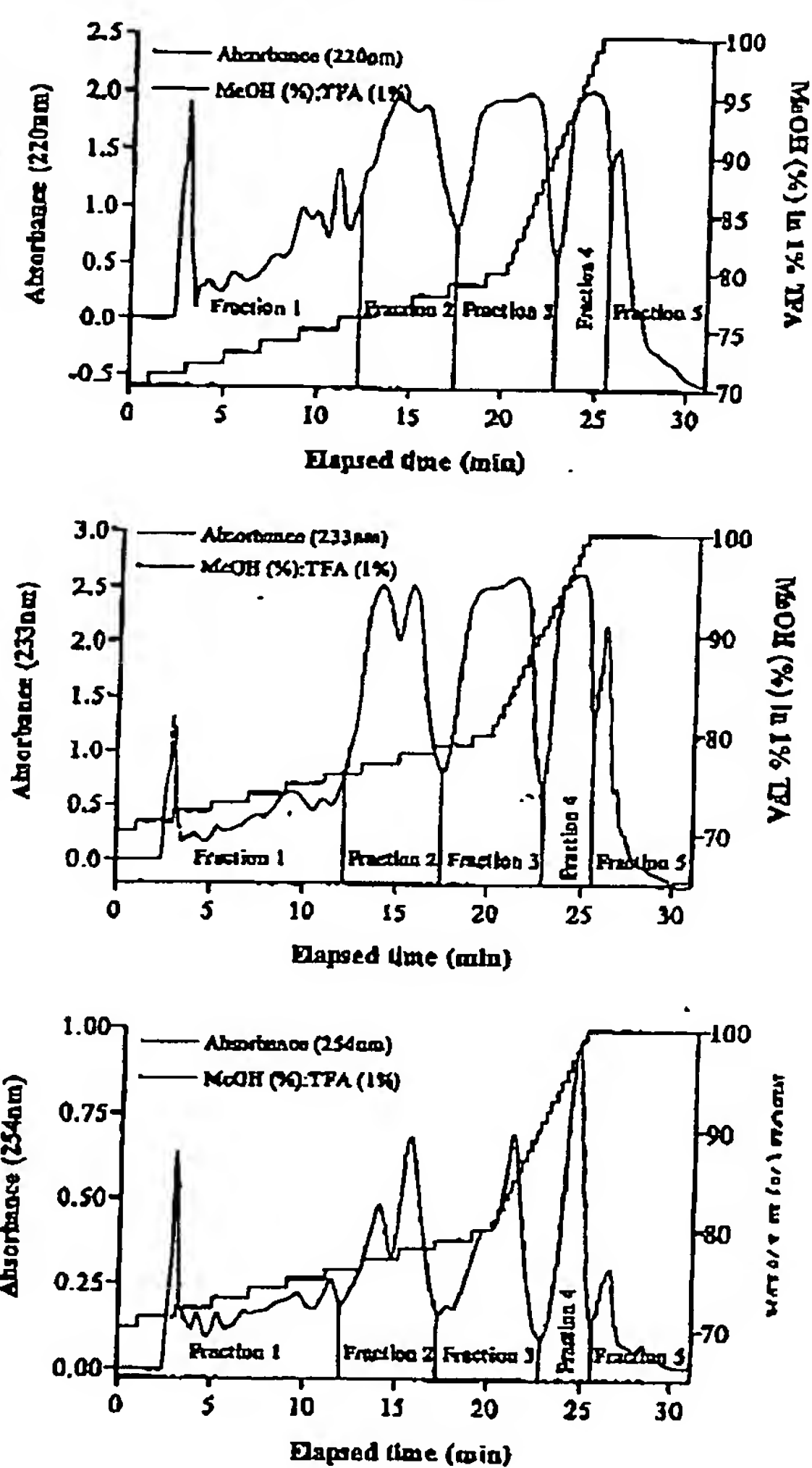
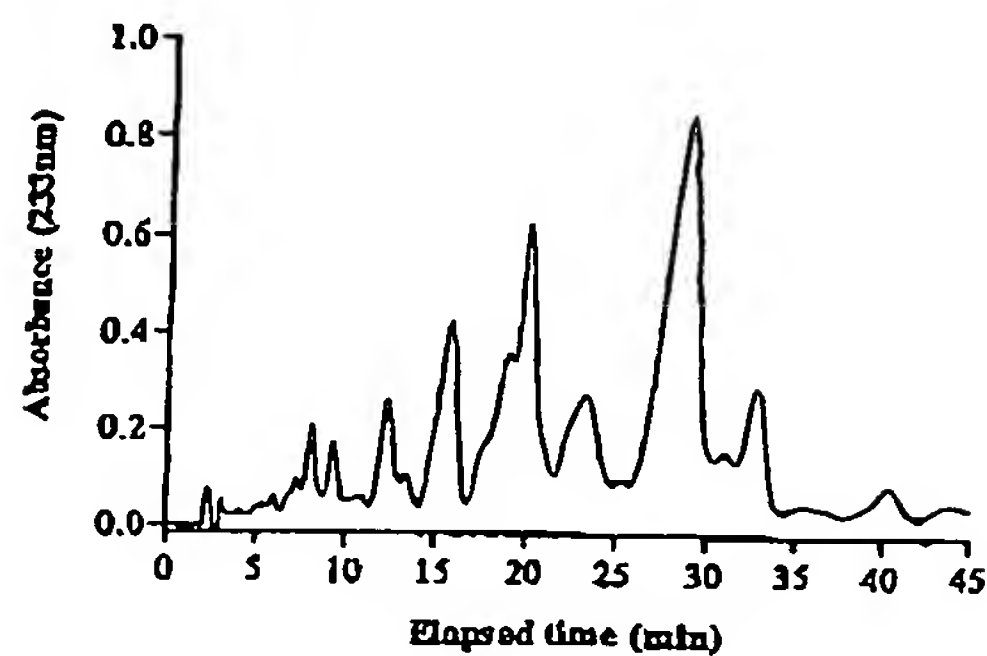


FIG 27 - Separation of fraction eluting at 70% MeOH (F70).

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Analytical separations



Preparatory separations

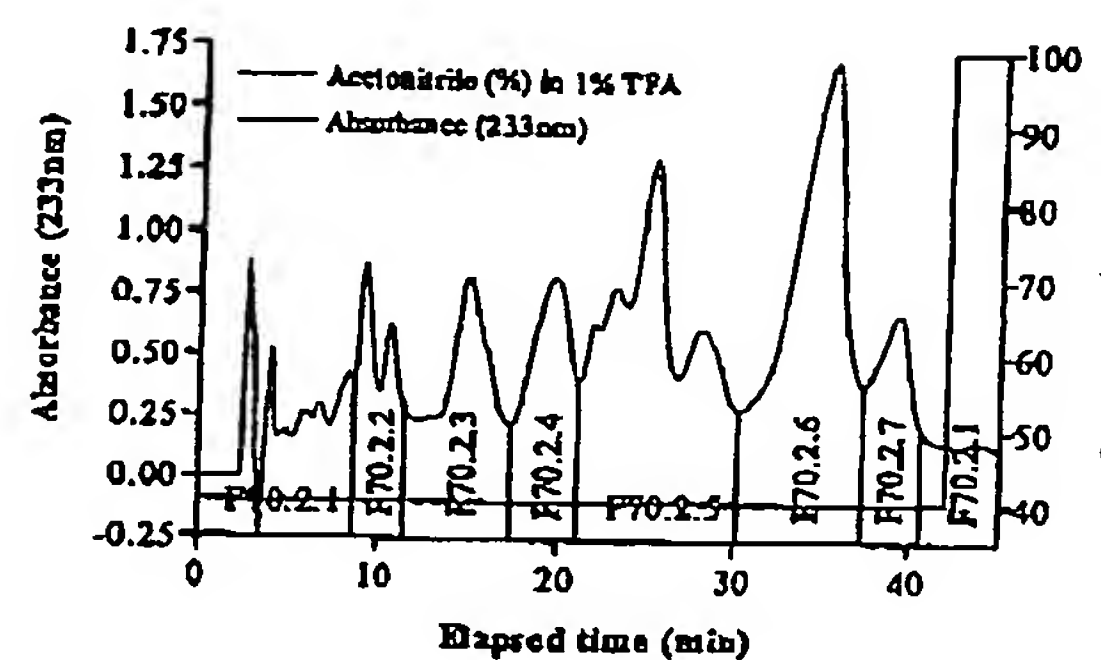


FIG 28 - Separation of fraction F70.2 (40%MeCN in 1%TFA).

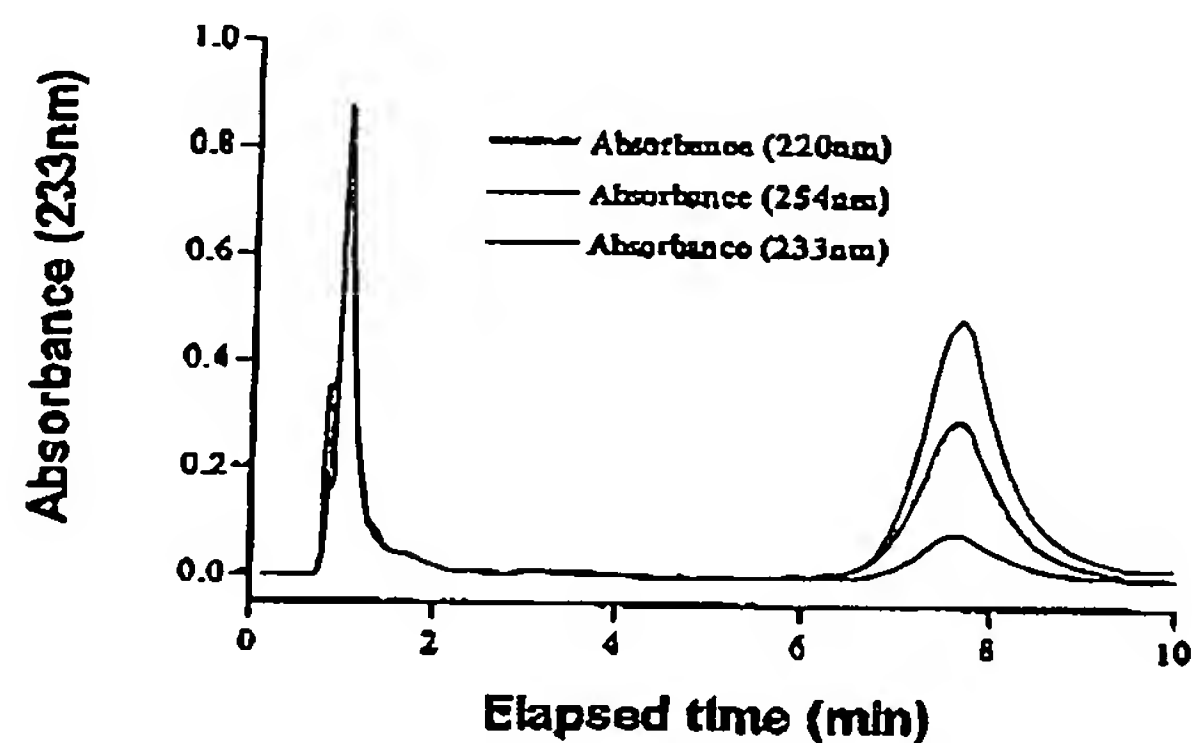


FIG 29 - Chromatogram of F70.2.6.

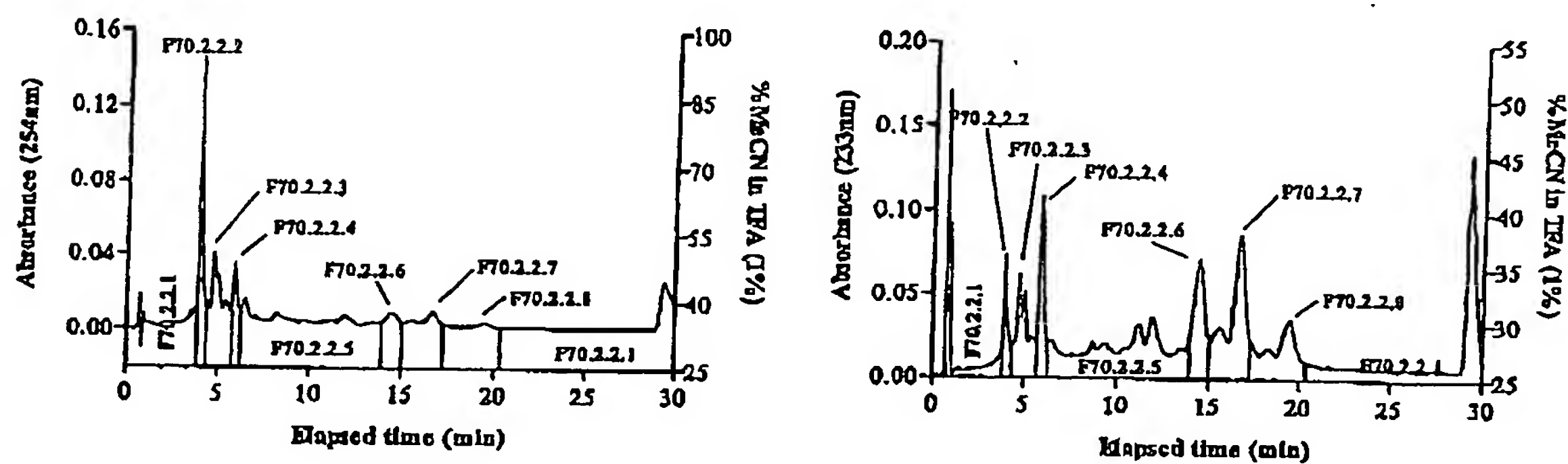


FIG 30 - Separation of fraction F70.2.2 at 254nm (left) and 233nm (right).

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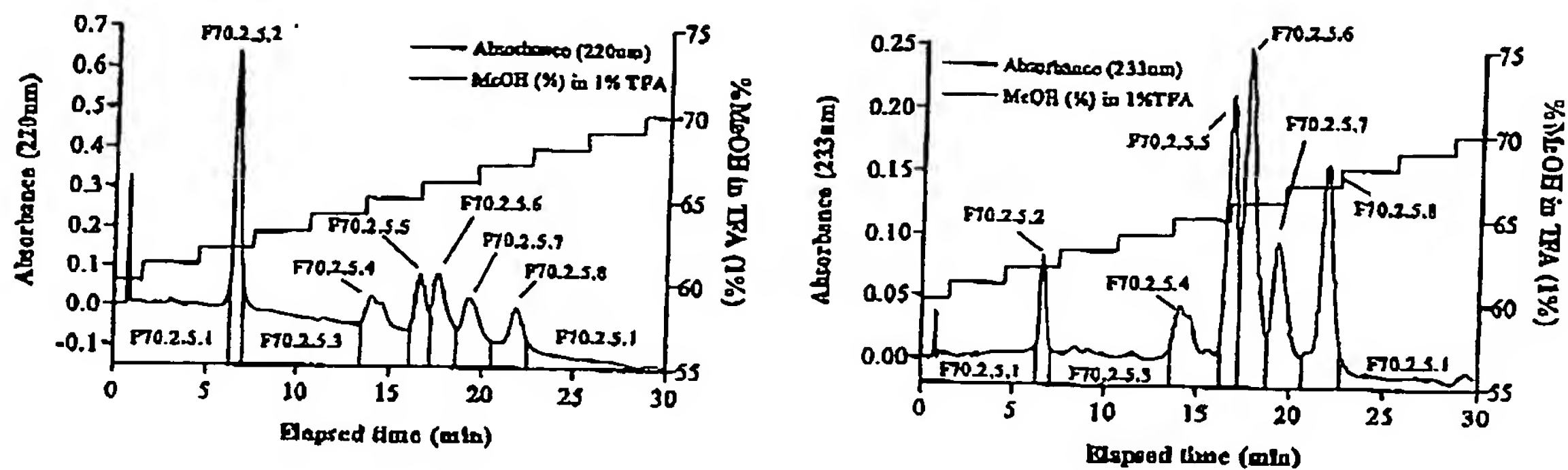
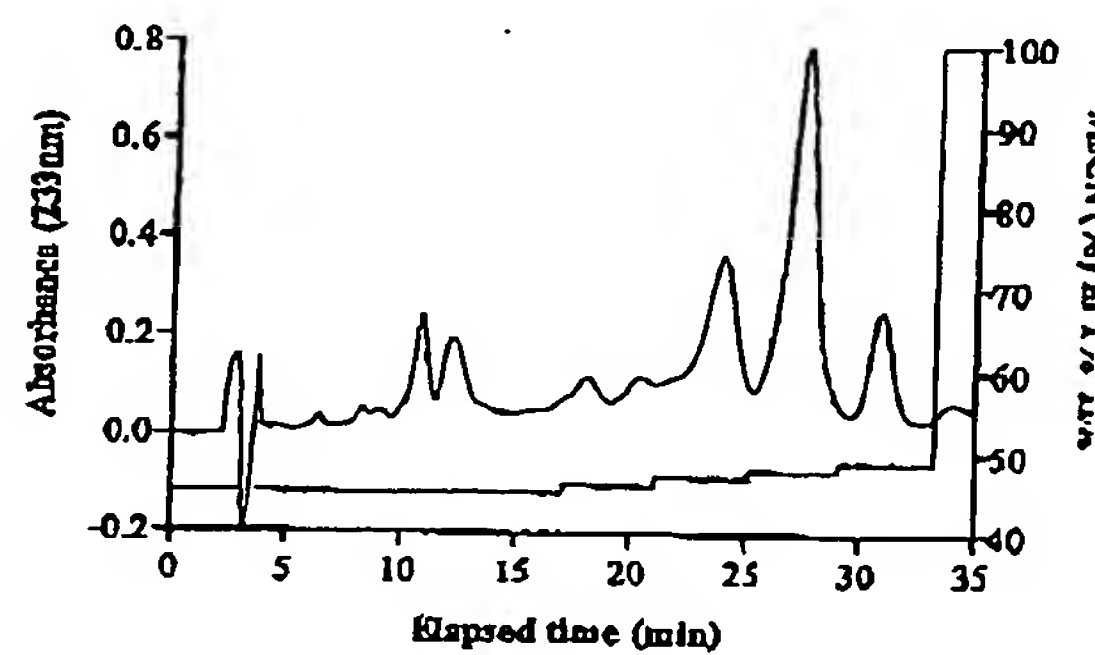


FIG 31 - Separation of fraction F70.2.5 at 220nm (left) and 233nm (right).

Analytical separations



Preparatory separations

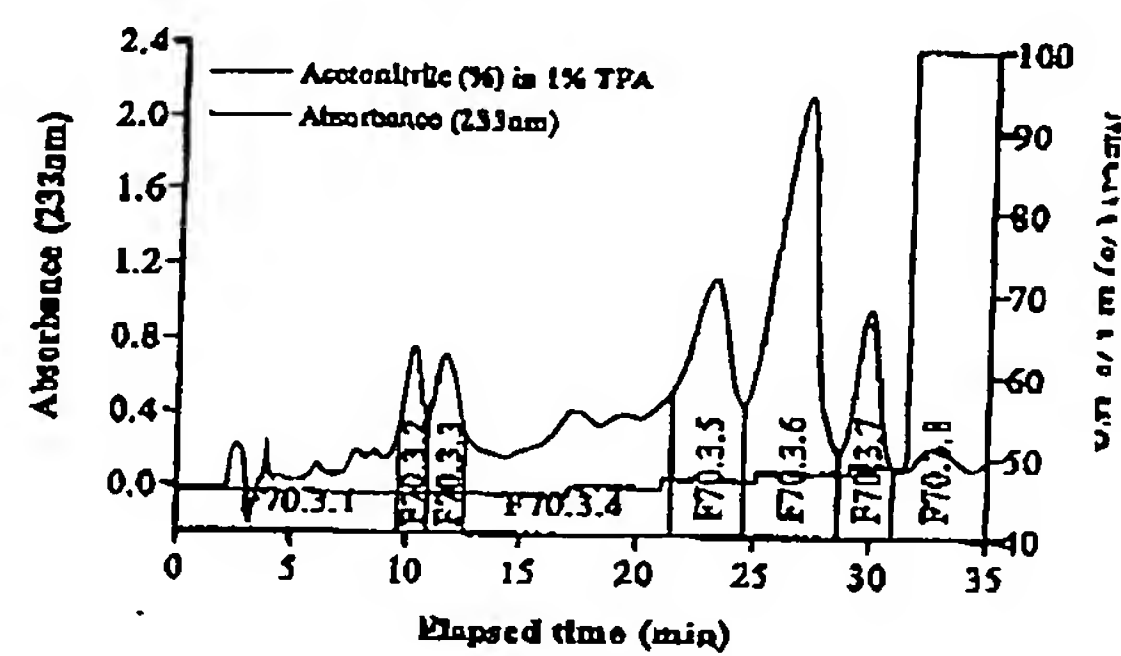
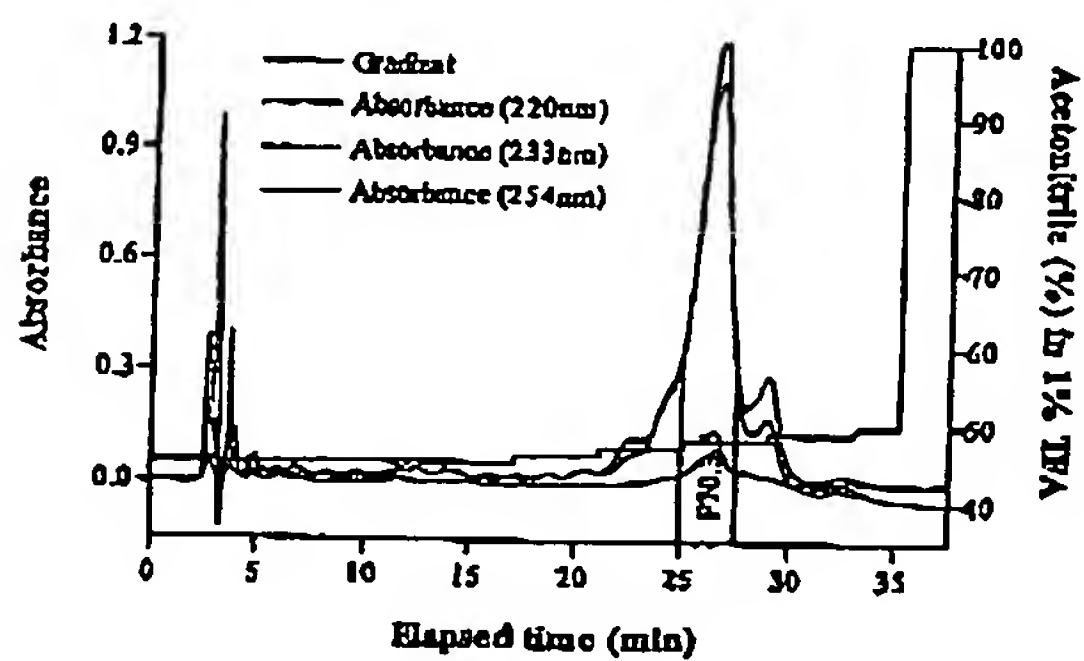


FIG 32 - Separation of fraction F70.3.

Fraction F70.3.5



Fraction F70.3.7

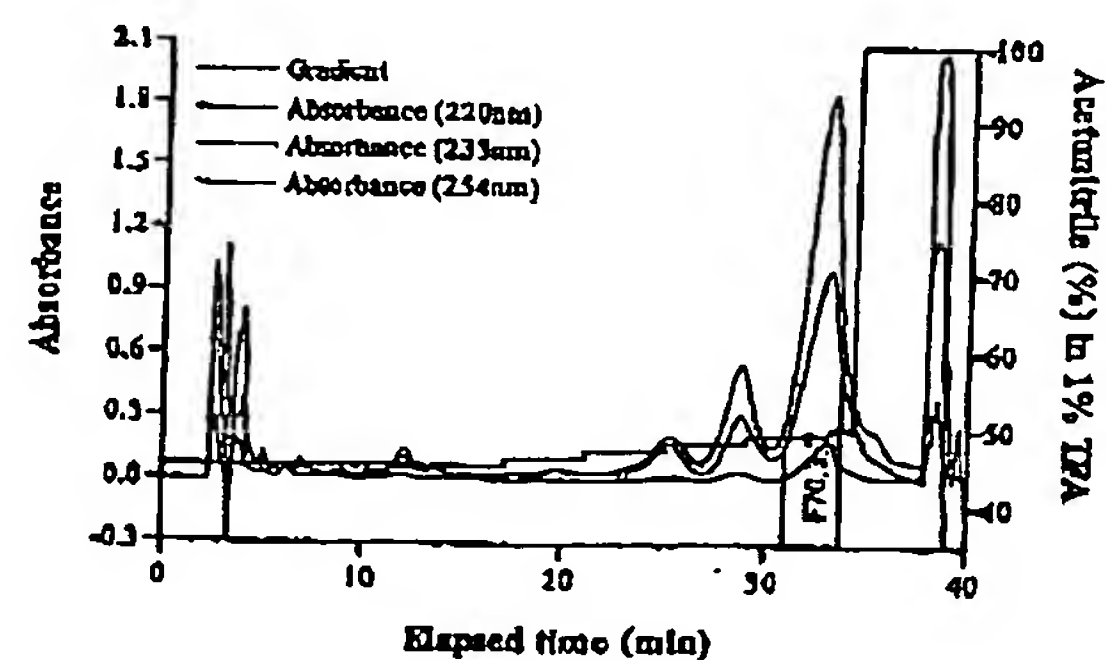
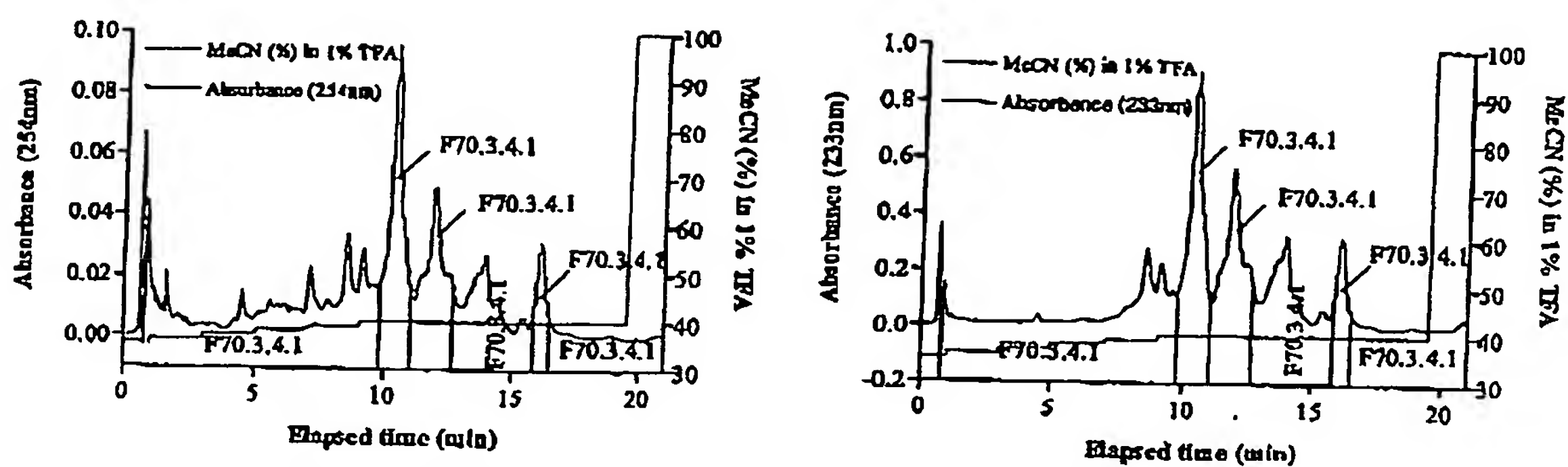
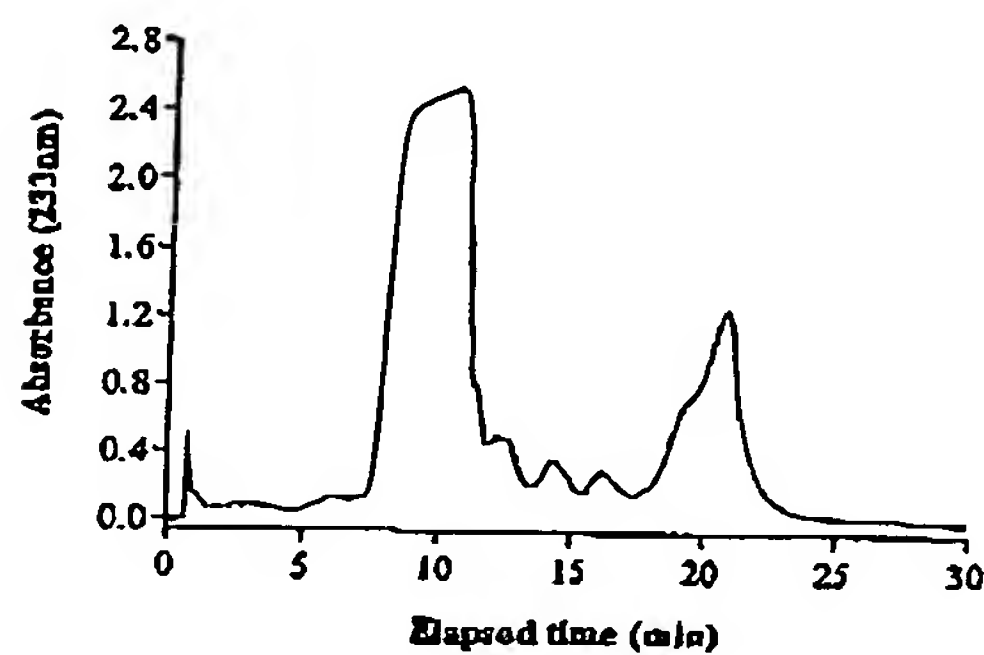


FIG 33 - Chromatograms of F70.3.5 and F70.3.7.

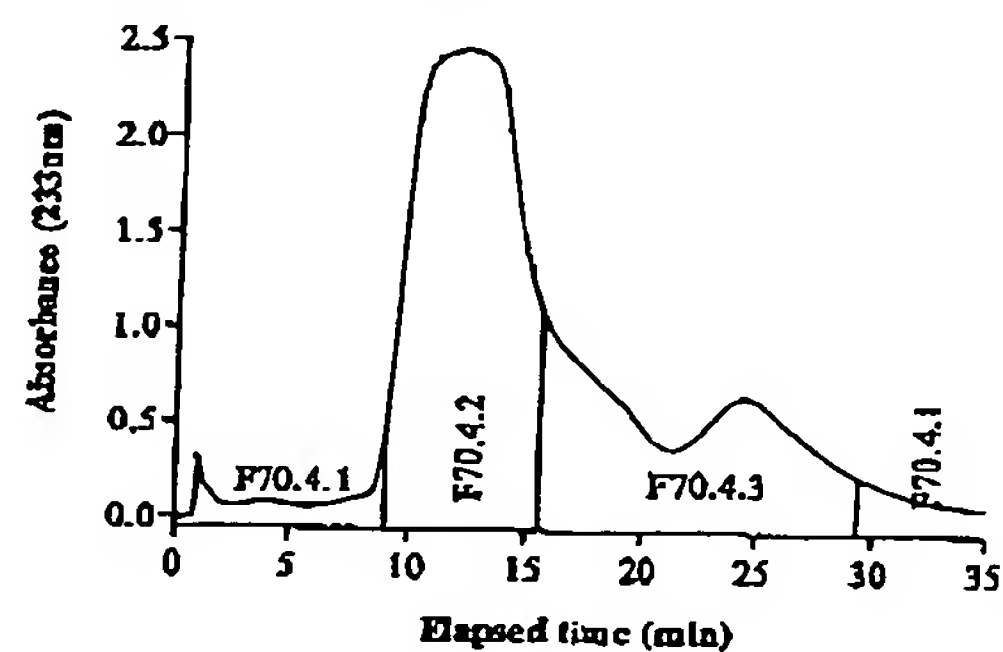
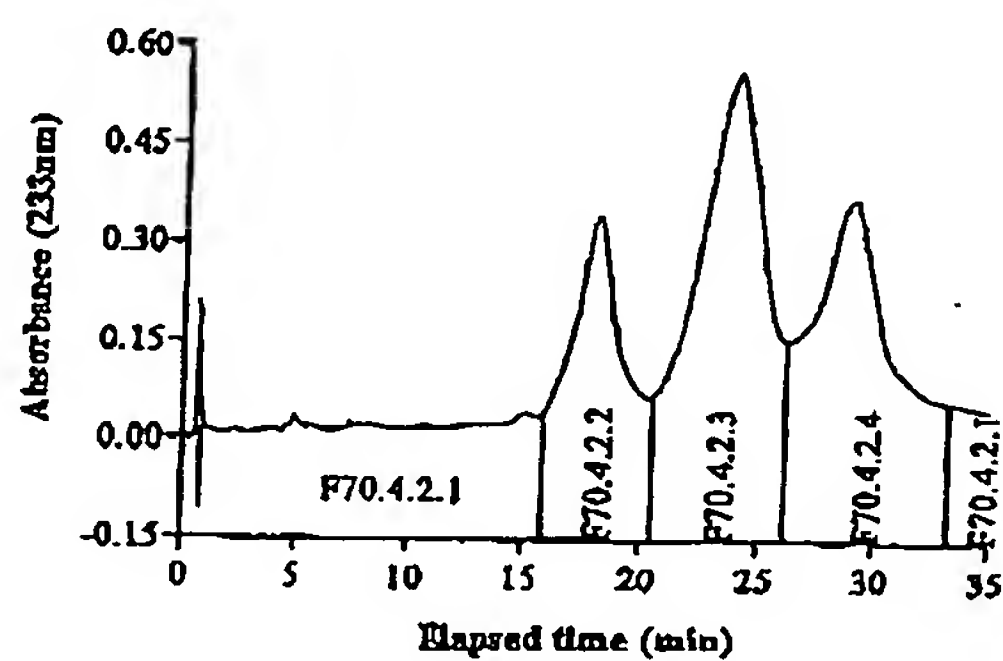
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**FIG 34 - Analytical separation of fraction F70.3.4 at 254 and 233nm.**

Analytical separation



Preparative separation

**FIG 35 - Separation of F70.4.****FIG 36 - Separation of F70.4.2.**

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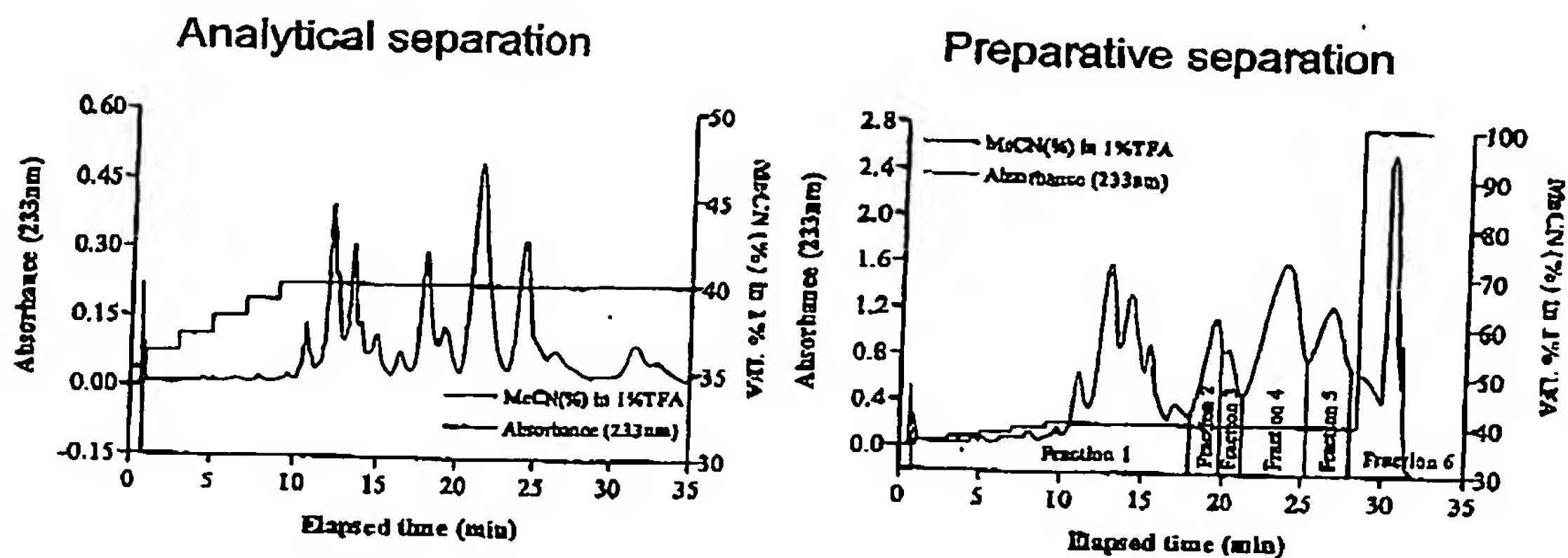


FIG 37 - Analytical separation (left) and preparative separation (right) of F70.4.3.

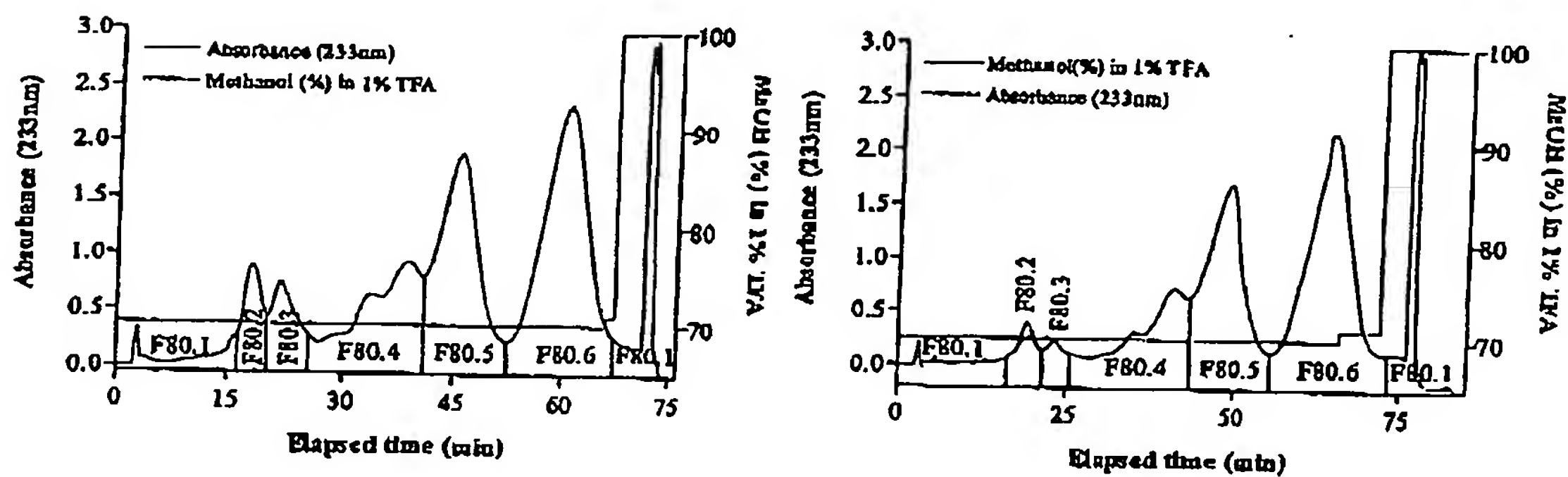


FIG 38 - Preparative chromatograms showing loss of peaks F80.2 & F80.3.

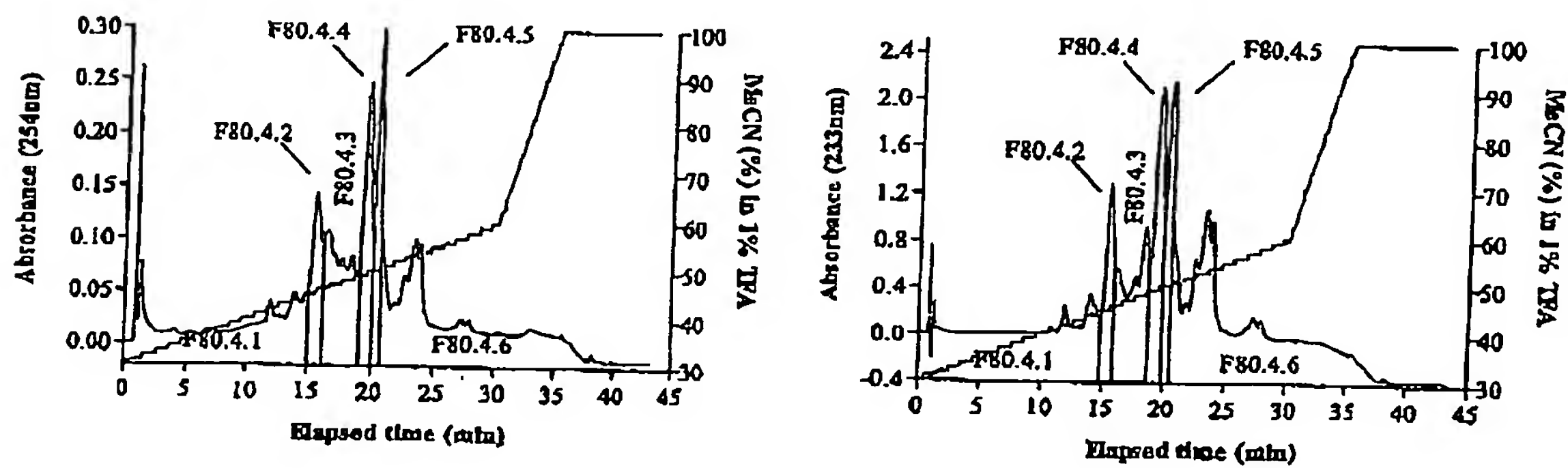


FIG 39 - Preparative chromatograms of F80.4.

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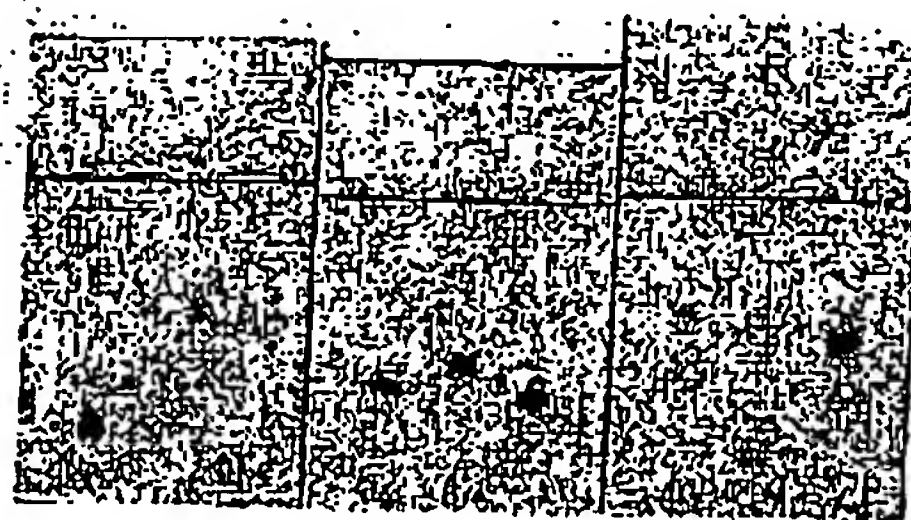
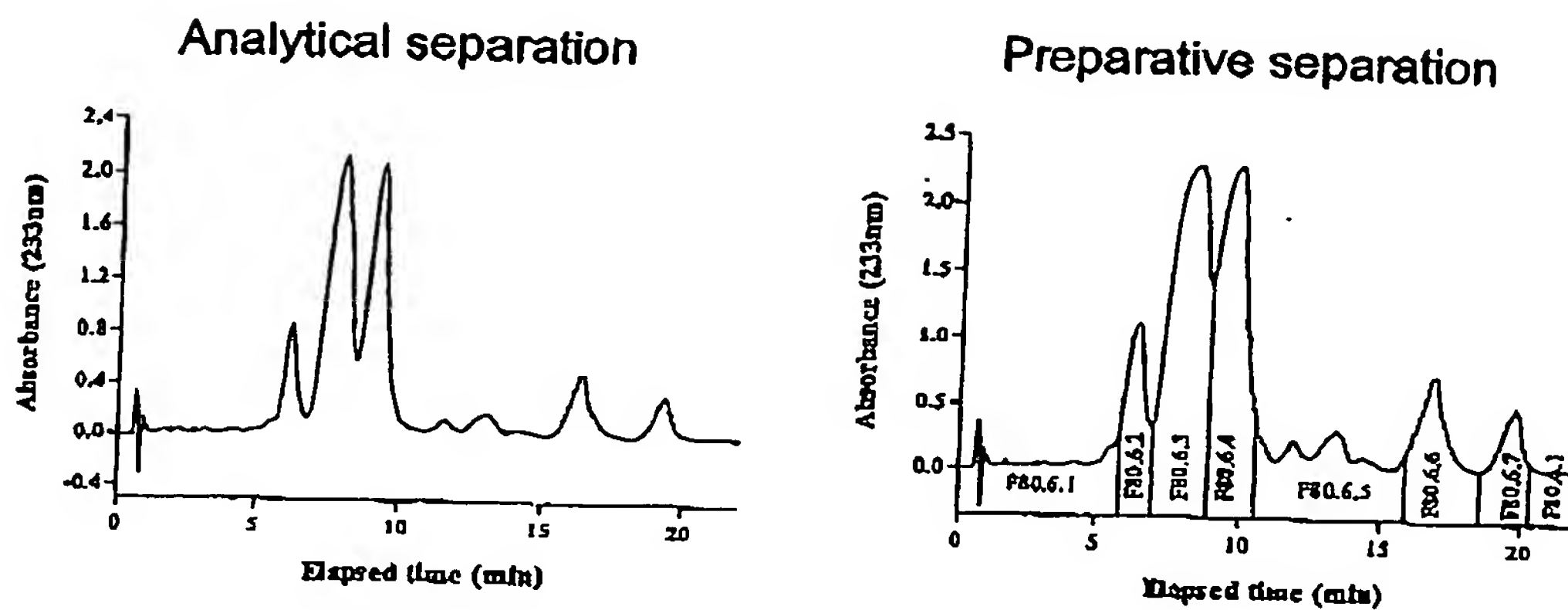
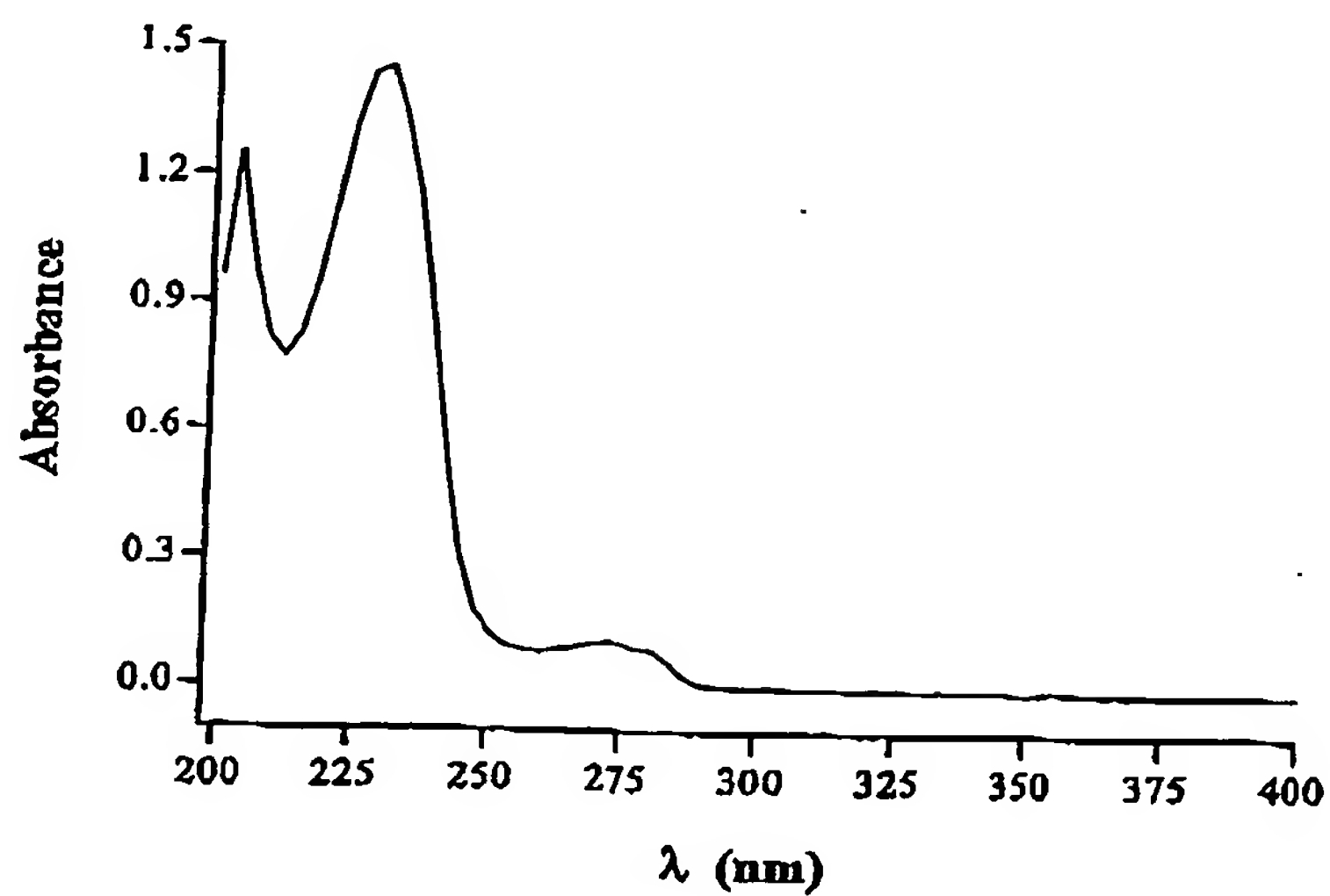


FIG 41 - Standard sugars used for TLC



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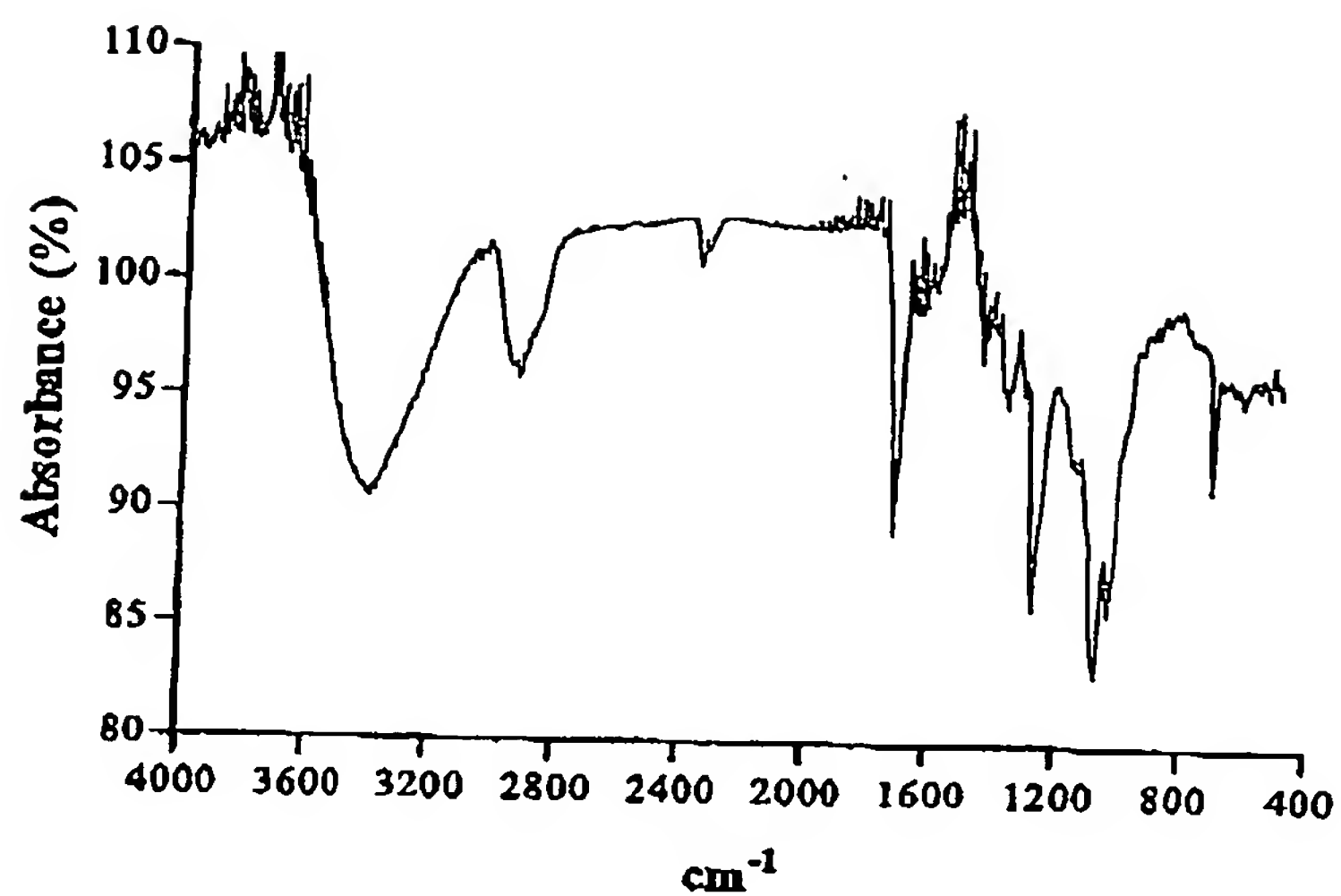
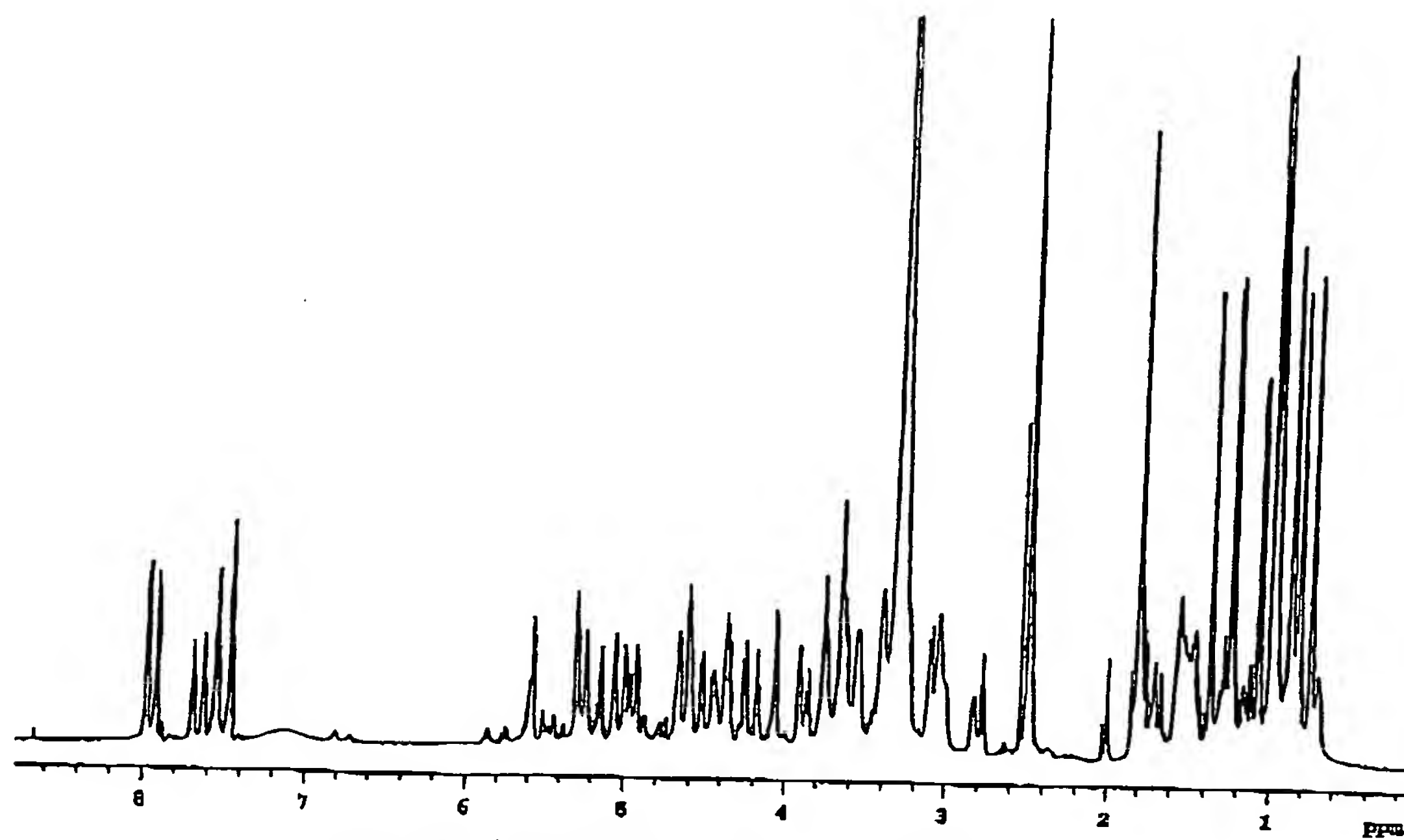


FIG 43 - FTIR spectrum of F70.3.6

FIG 44 - ¹H-NMR for compound F70.3.6

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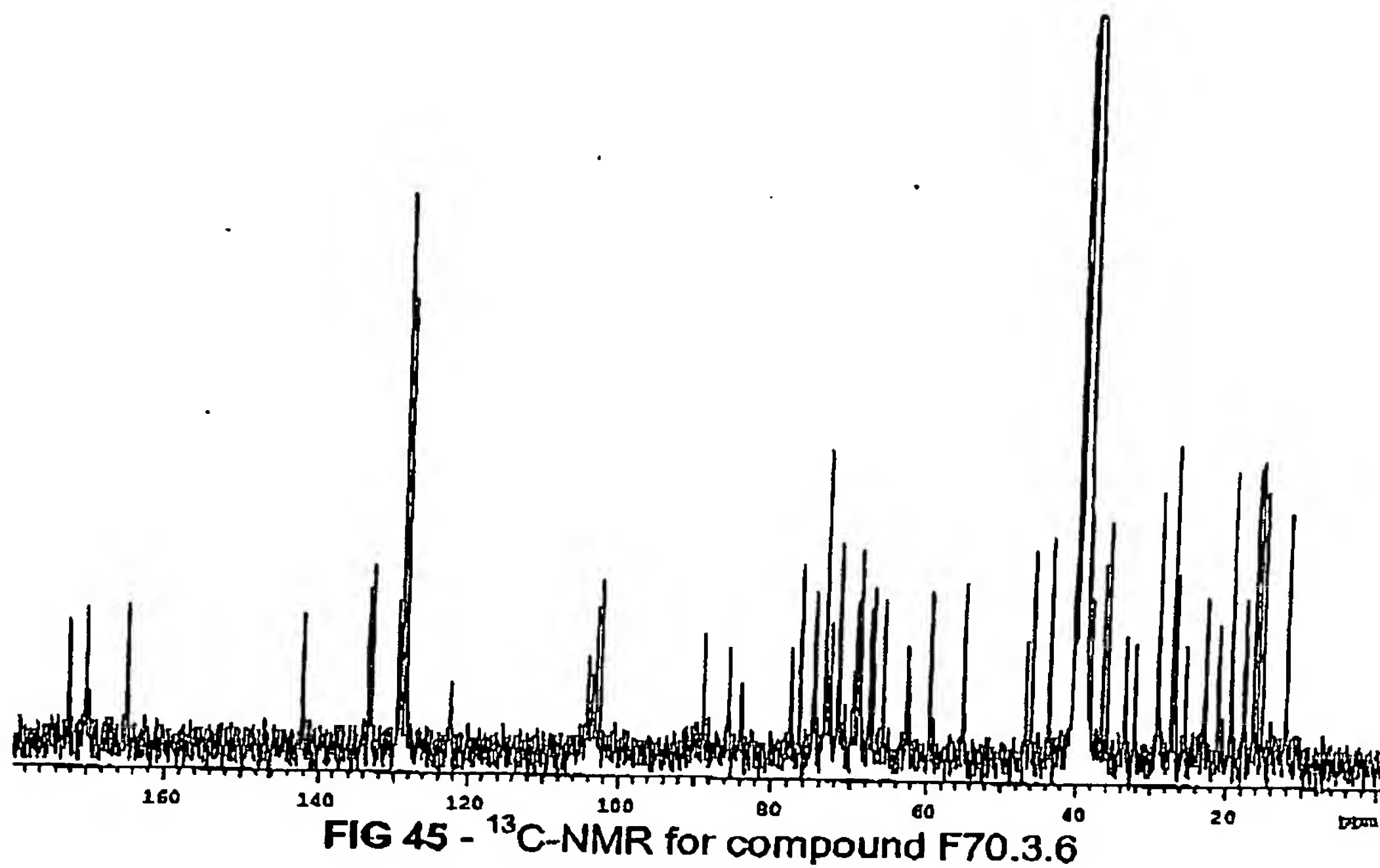
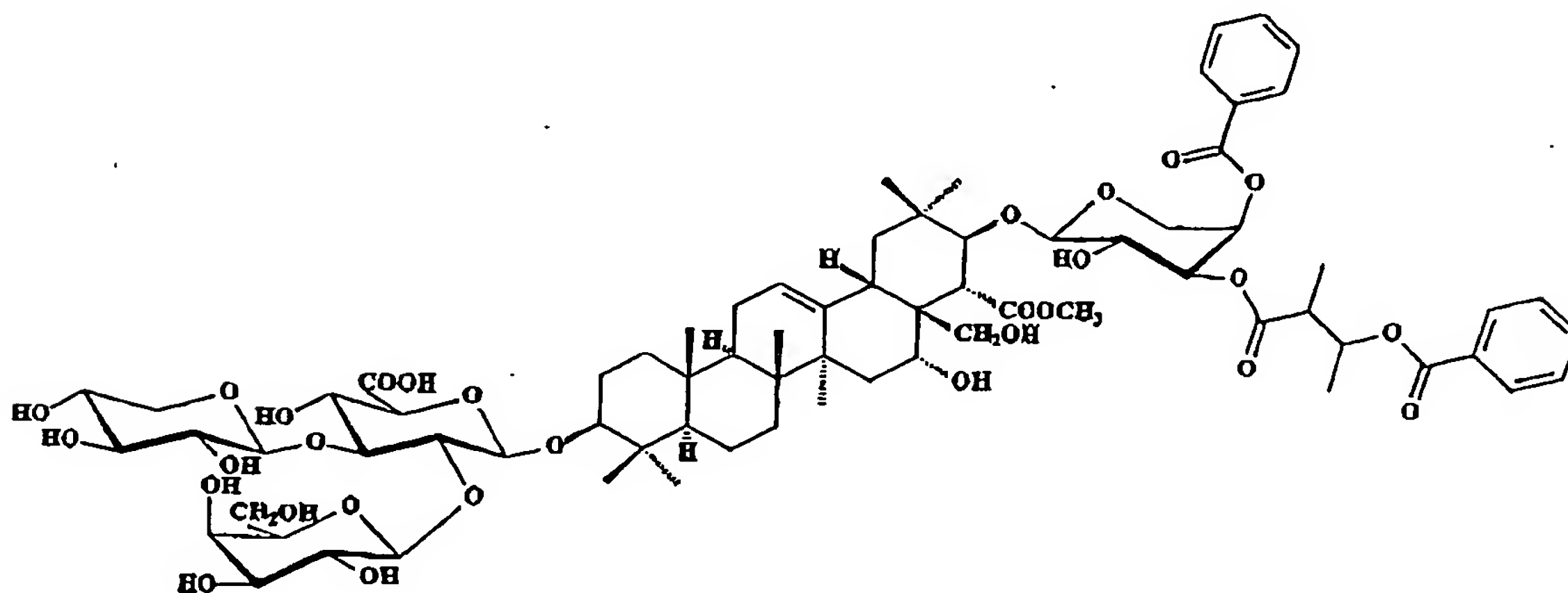
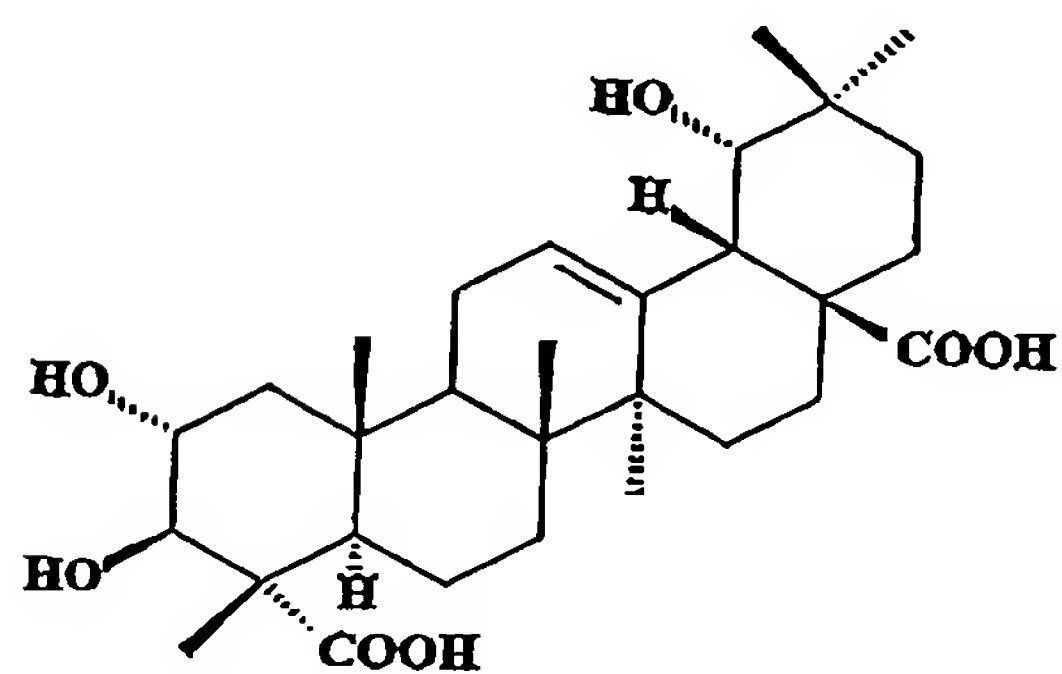
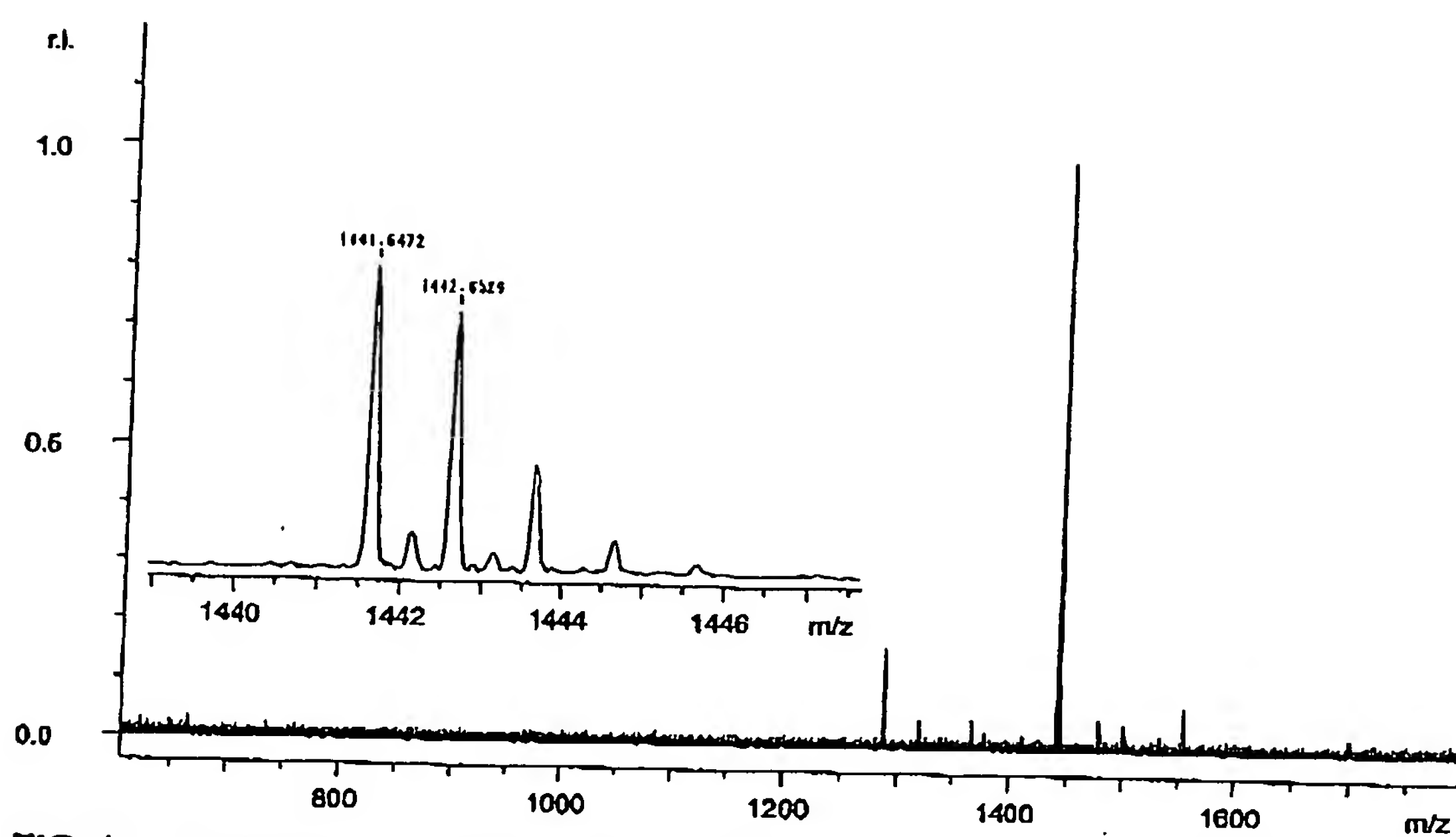
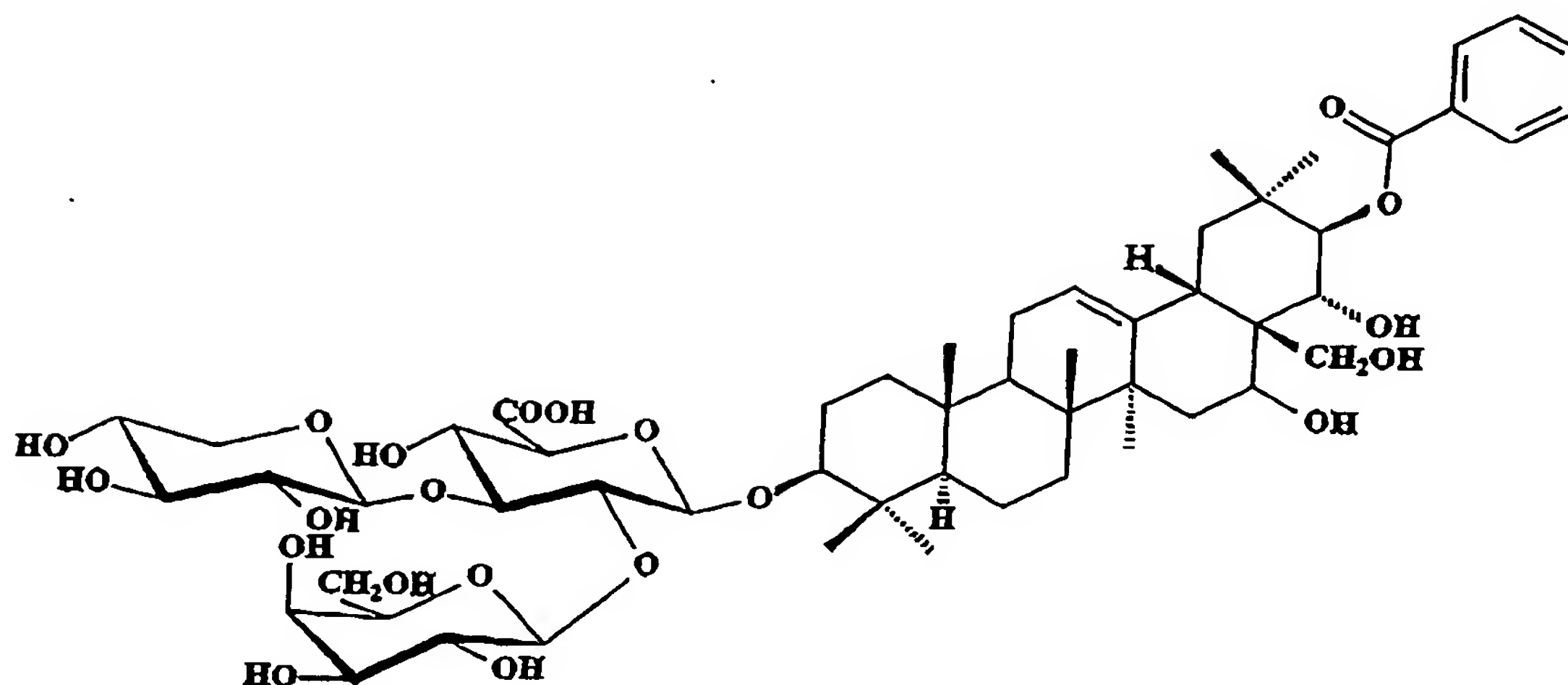
FIG 45 - ^{13}C -NMR for compound F70.3.6

FIG 46 - The complete assignment of F70.3.6
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3-(3-benzoyl-2-methylbutanoyl)-4-benzoyl- α -L-arabinopyranosyl]-22-O-acetyl barringtogenol C)

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FIG 49 - Compound F70.2.3.
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-benzoyl barringtogenol C)

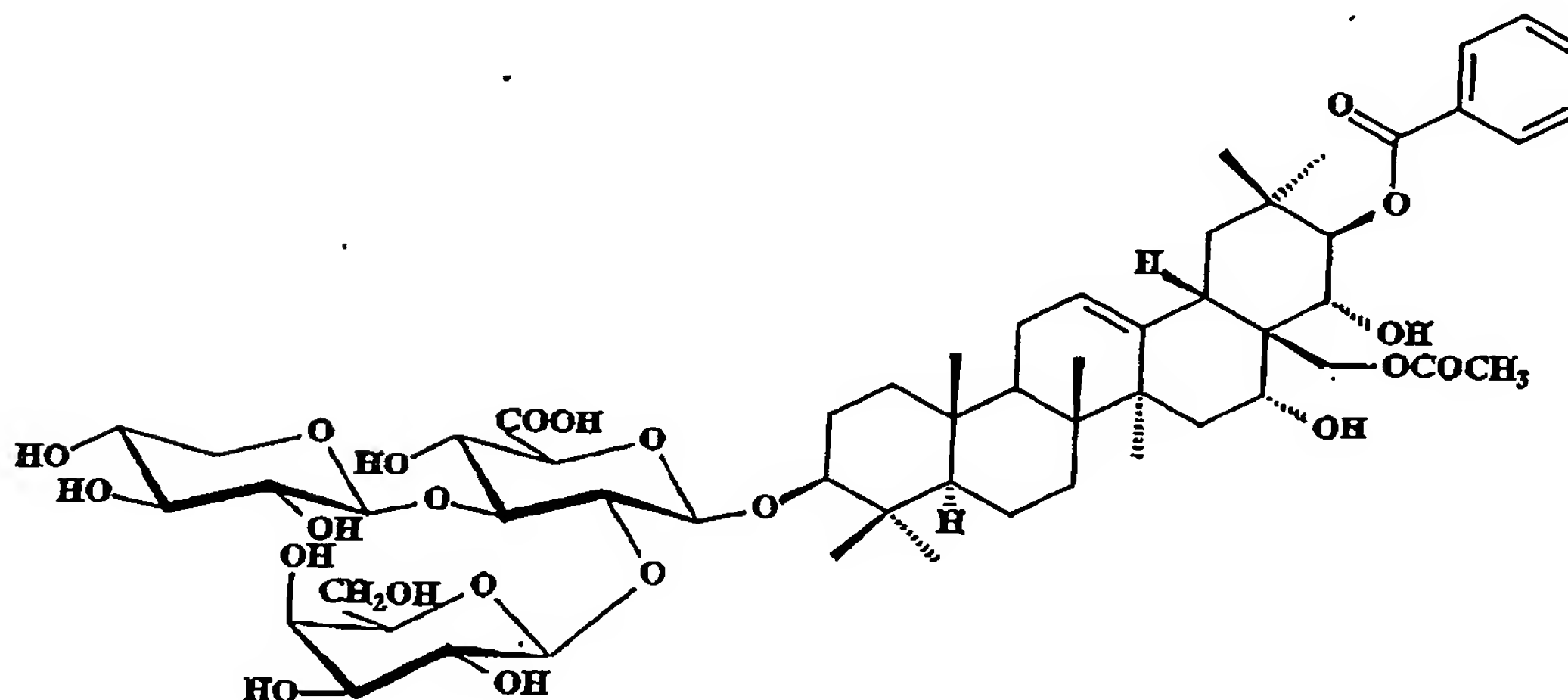


FIG 50 - Compound F70.3.2
3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-benzoyl-28-O-acetyl barringtogenol C)

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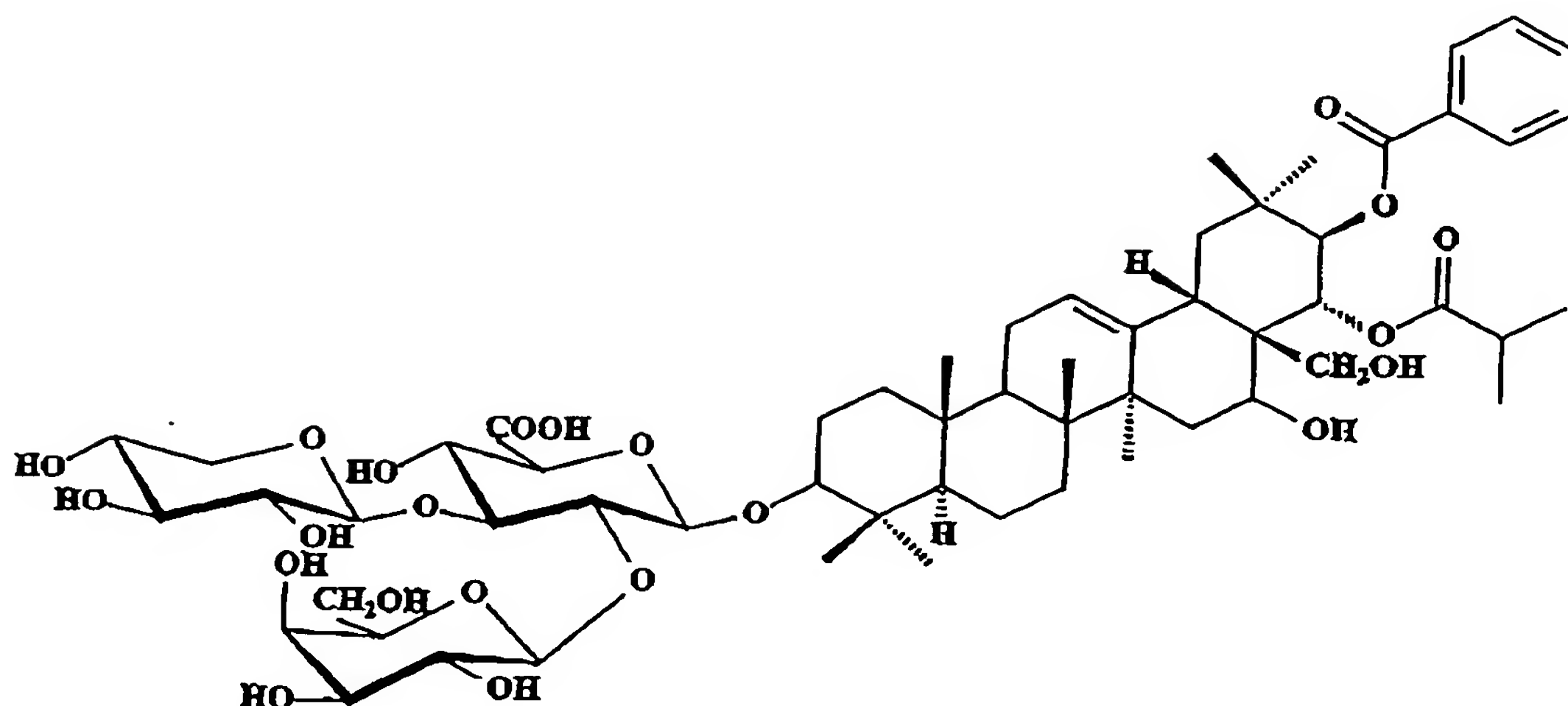


FIG 51 - Compound F70.3.4.2
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-benzoyl-22-O-isobutyryl barringtogenol C)

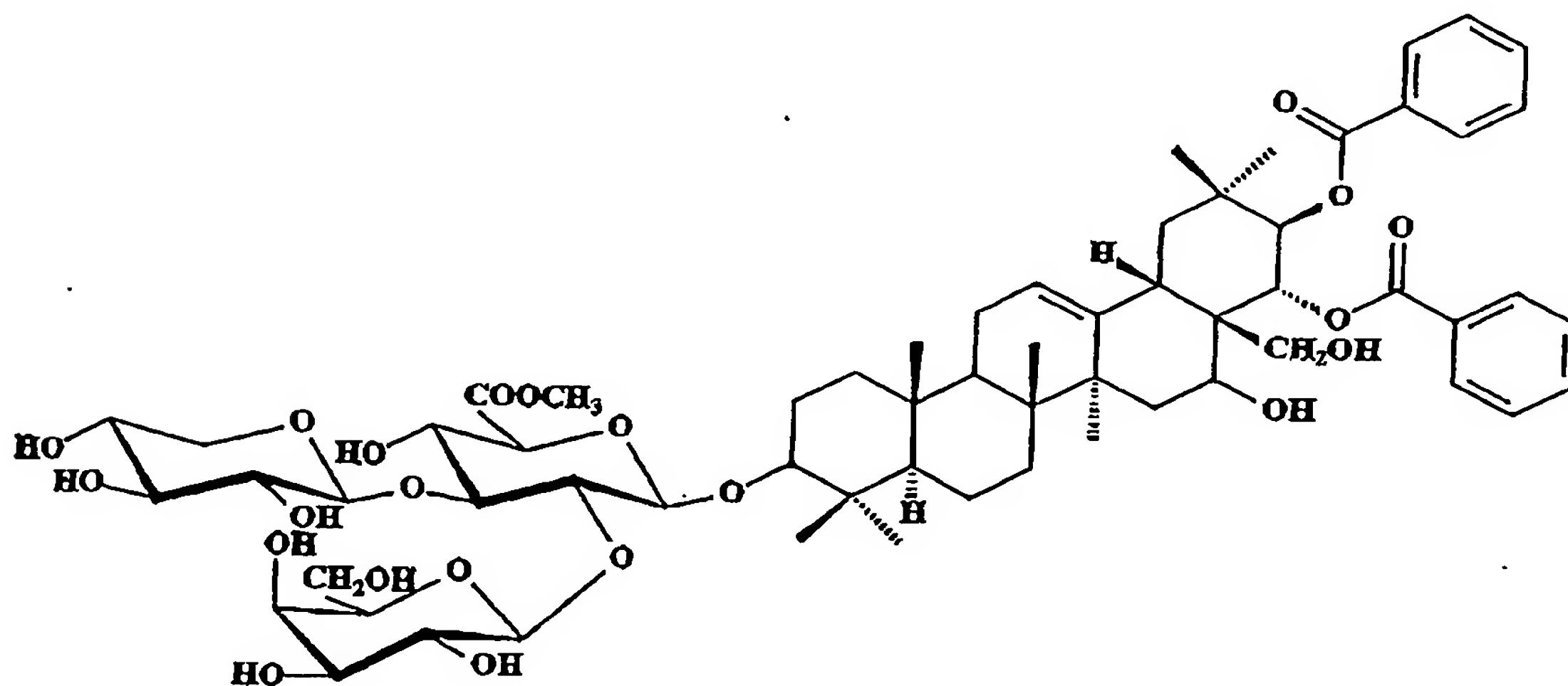


FIG 52 - Compounds F70.4.3.5.2/F80.6.7
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-methylglucuronopyranosyl-21,22-O-dibenzoyl barringtogenol C)

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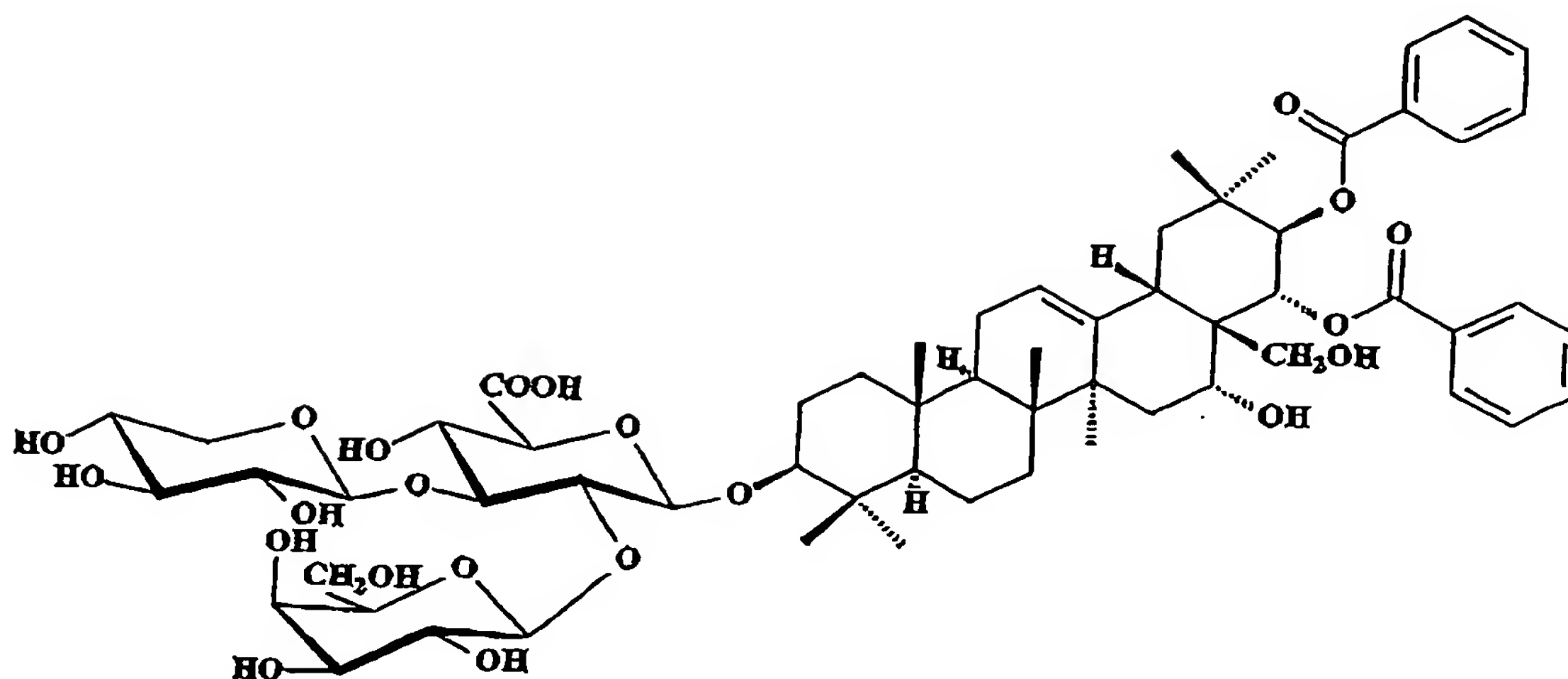


FIG 53 - Compound F80.6.4/F70.4.2.4.2
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21, 22-O-dibenzoyl barringtogenol C

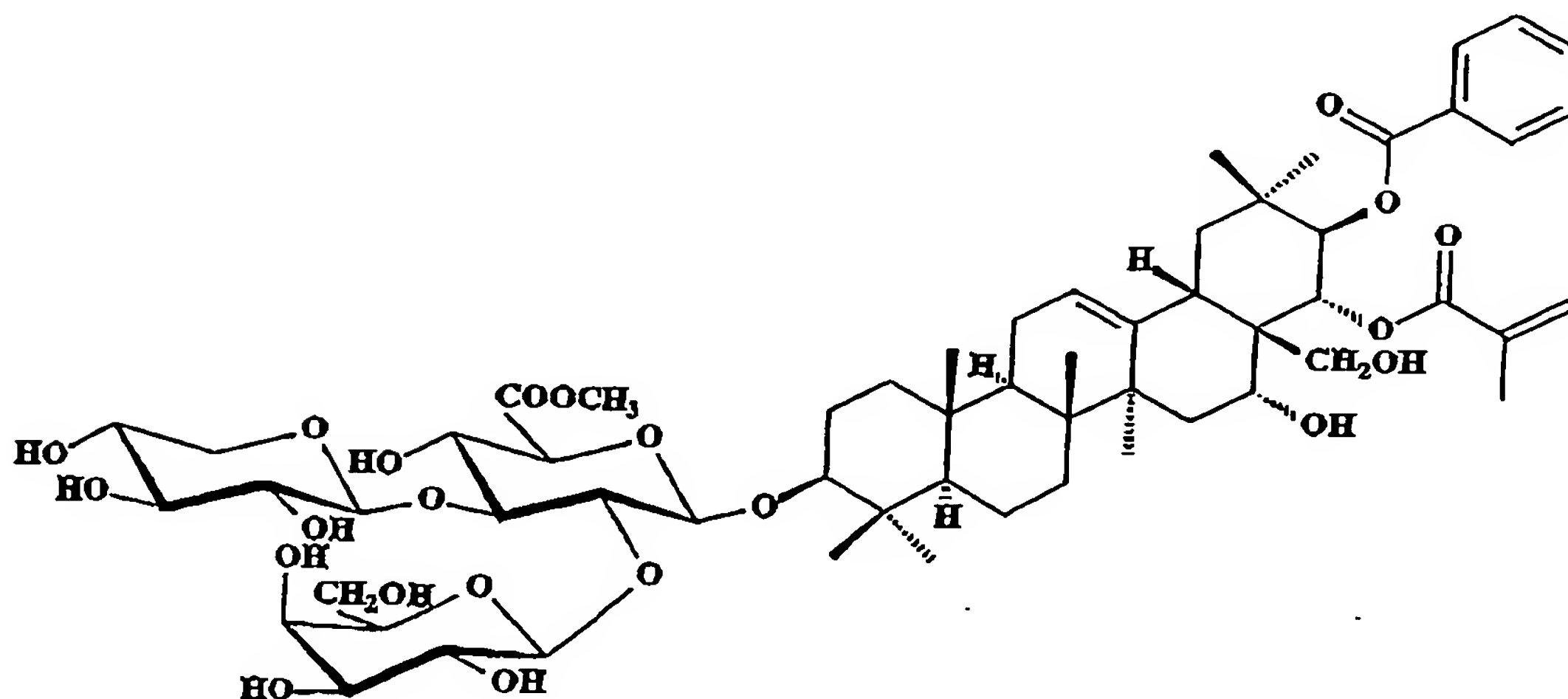


FIG 54 - Compound F70.4.3.4.2/F80.6.6
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-methylglucuronopyranosyl-21-O-benzoyl-22-O-figloyl barringtogenol C)

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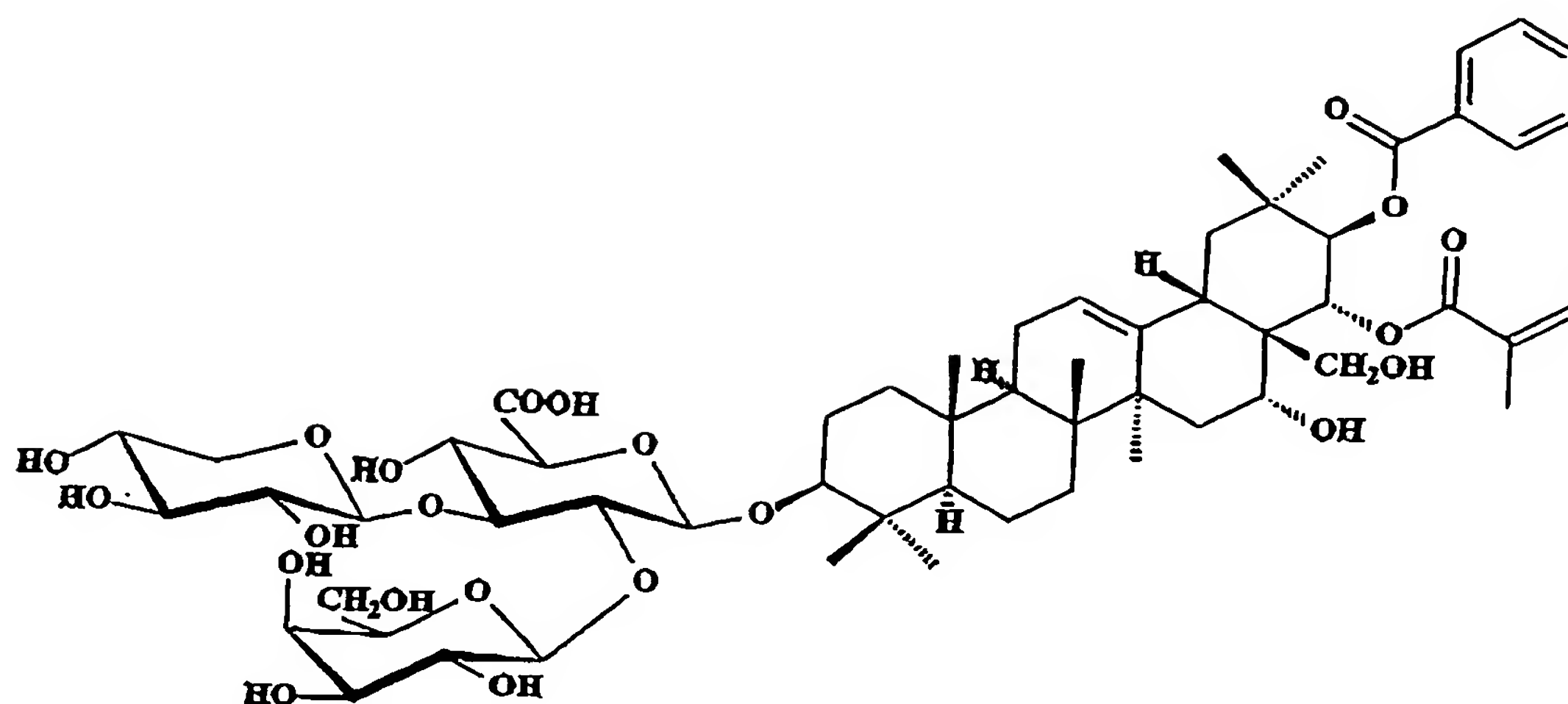


FIG 55 - Compound F70.4.2.3/F80.6.3
(3-O- β -D-xylopyranosyl(1 \rightarrow 3))- β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-benzoyl-22-O-tigloyl barringtonenol C)

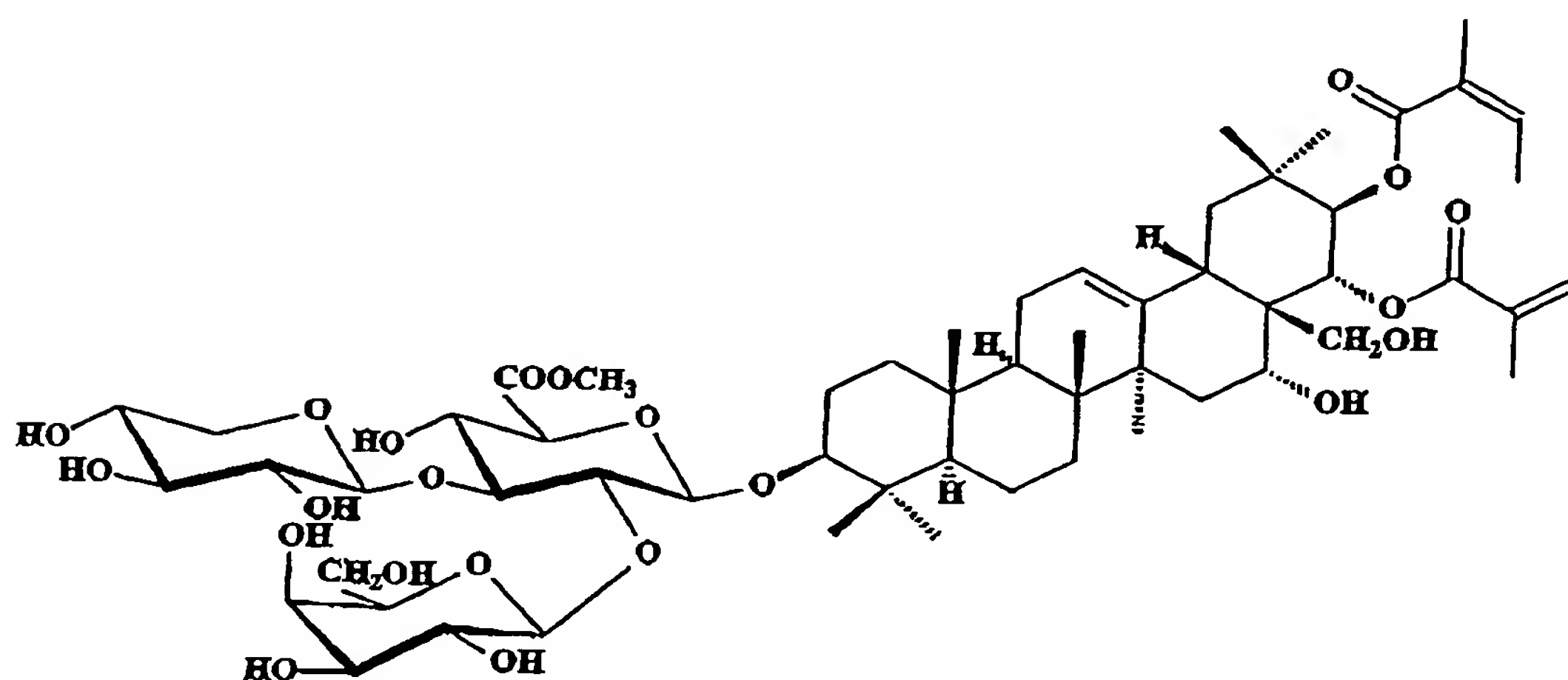


FIG 56 - Compound F70.4.3.2.2
(3-O- β -D-xylopyranosyl(1 \rightarrow 3))- β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-methylglucuronopyranosyl-21,22-O-tigloyl barringtonenol C)

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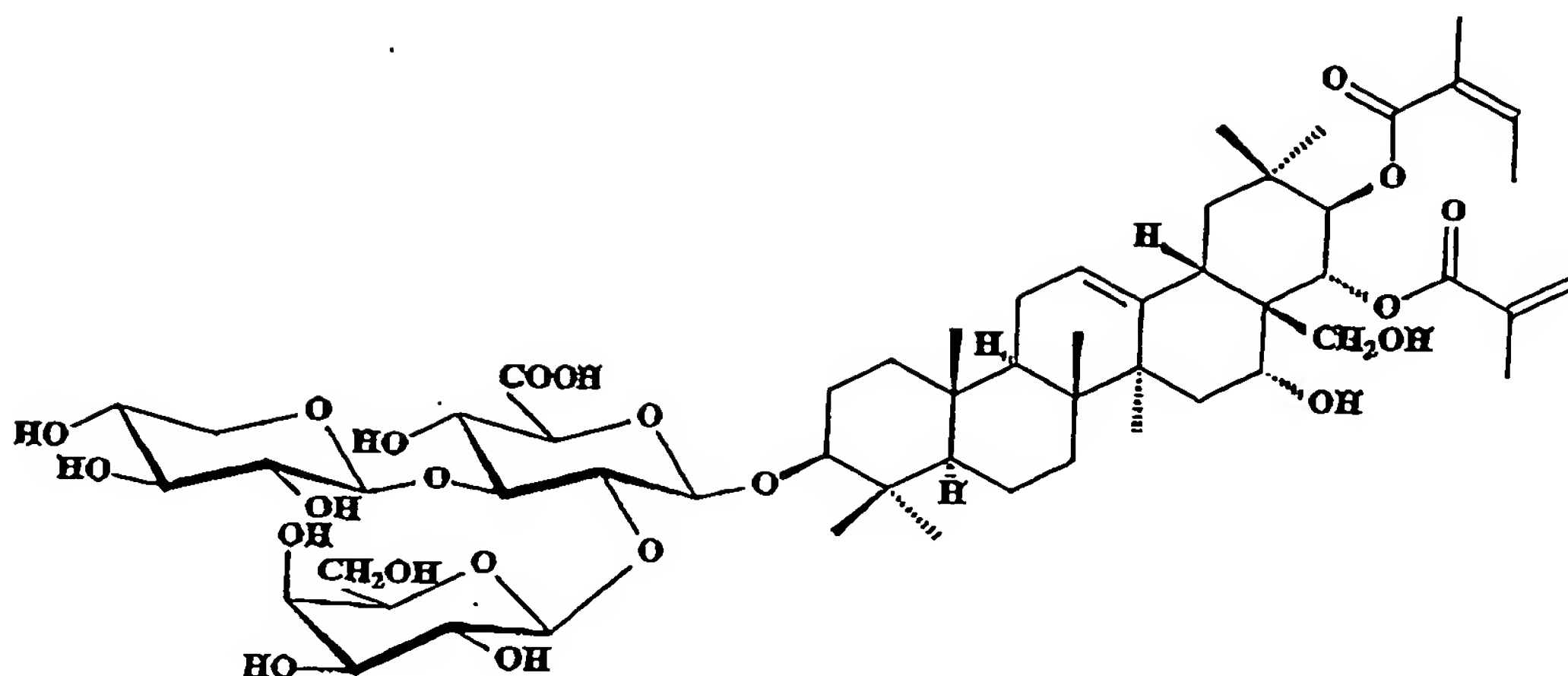


FIG 57 - Compound F80.6.2
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21,22-O-tigloyl barringtogenol C)

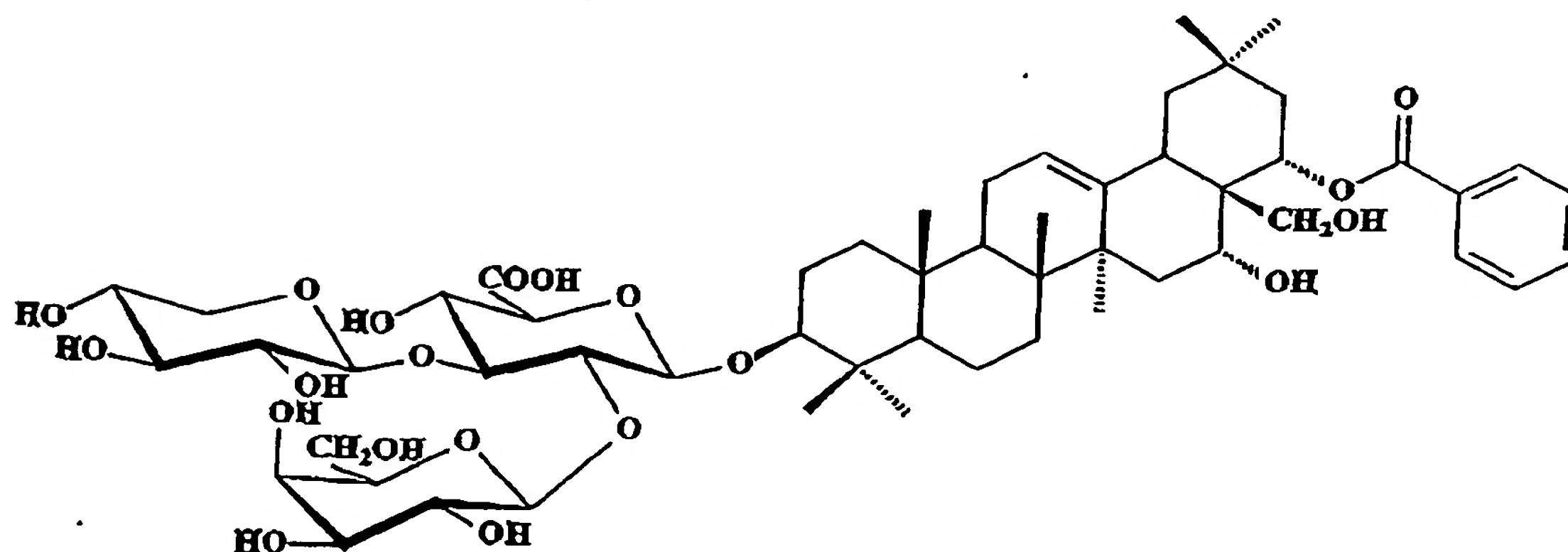


FIG 58 - Compound F70.3.3.2.2b
(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-22-O-benzoyl barringtogenol C)

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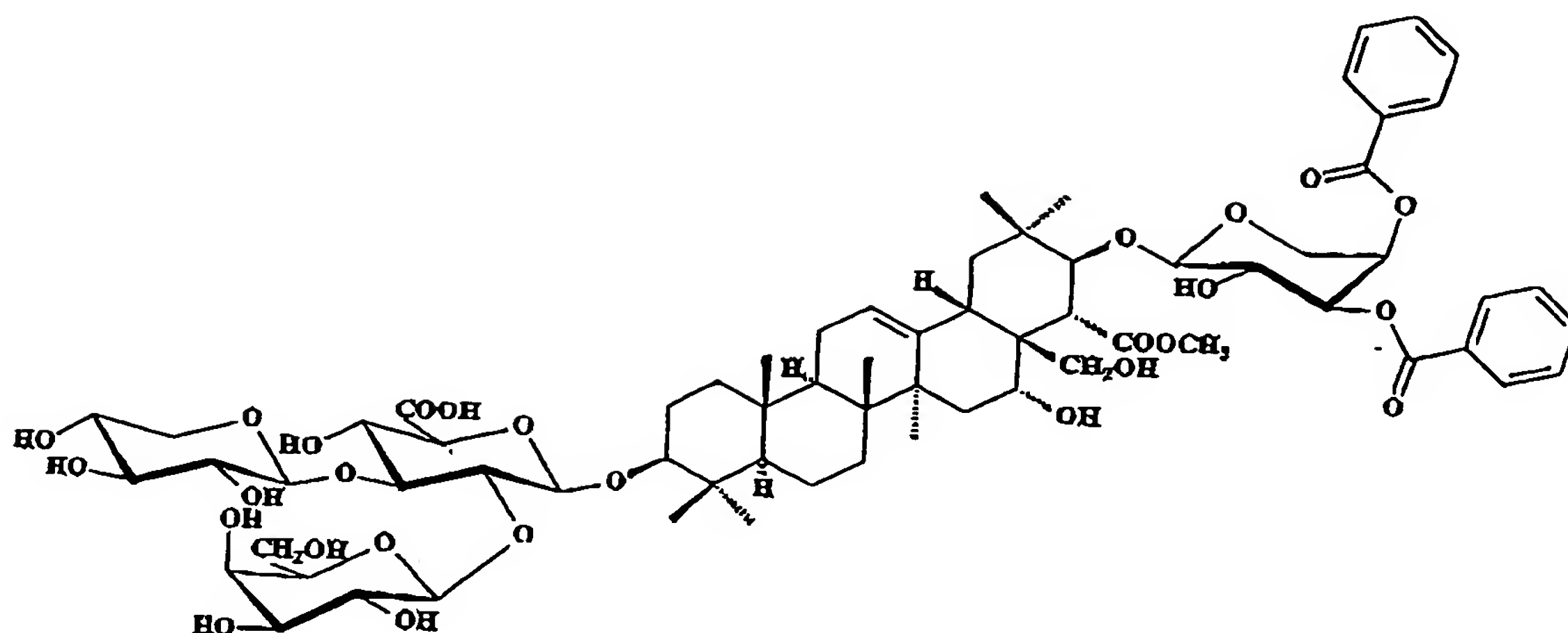


FIG 59 - Compound F70.2.6.2
 (3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3,4-dibenzoyl- γ -L-arabinopyranosyl]-22-O-acetyl barringtonol C)

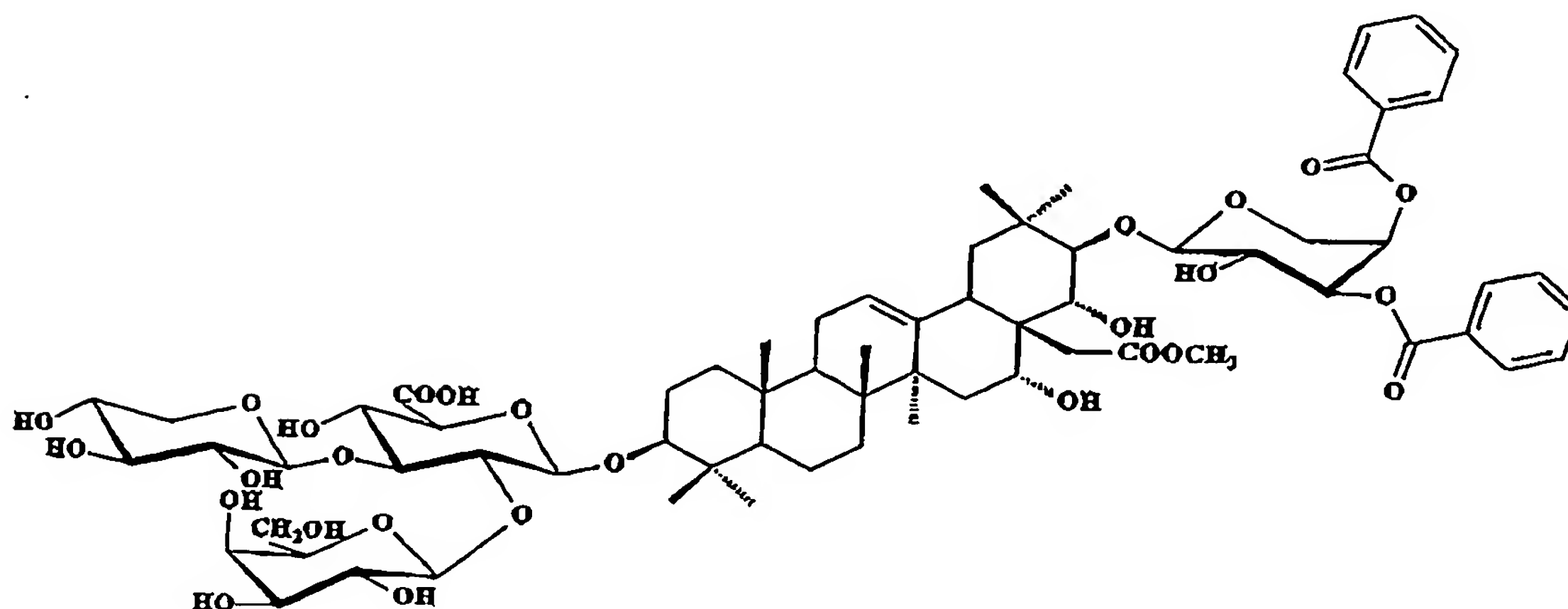


FIG 60 - Compound F70.3.4.5
 (3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3,4-dibenzoyl- α -L-arabinopyranosyl]-28-O-acetyl barringtonol C)

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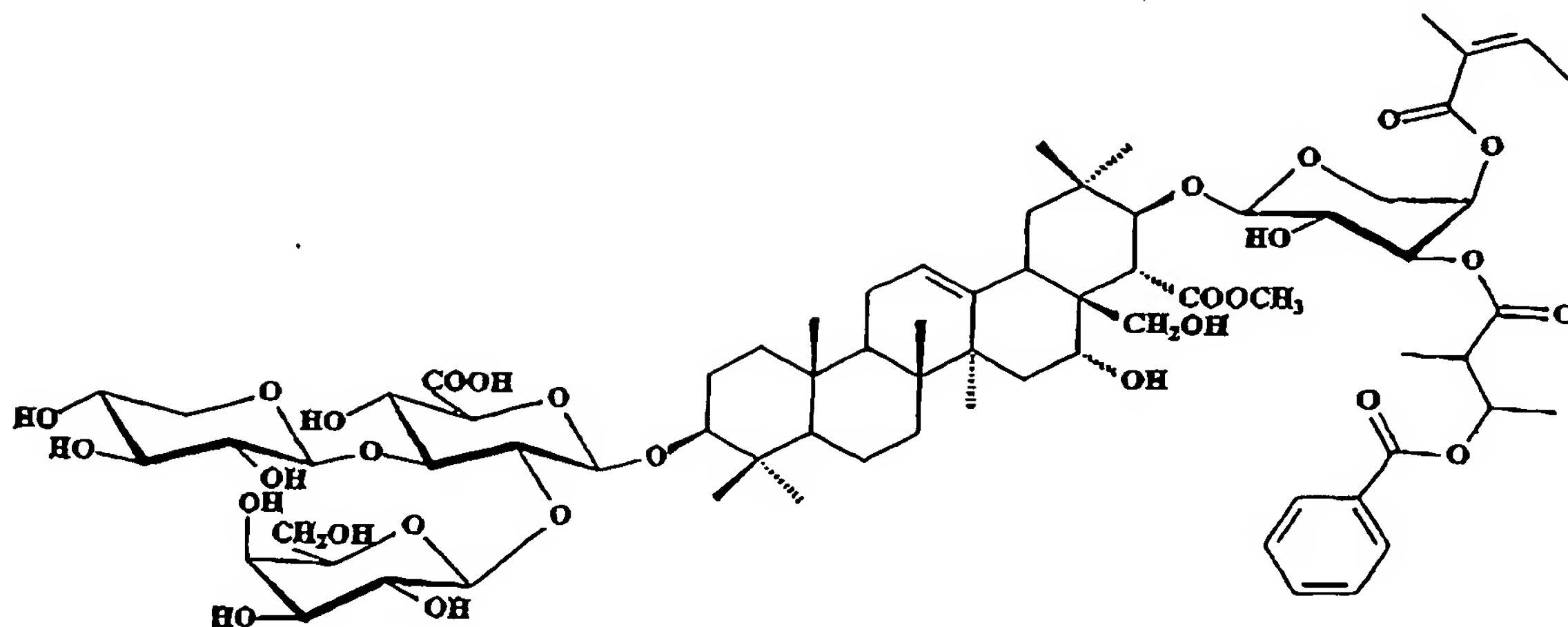


FIG 61 - Compound F70.3.5a

(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3-(3-benzoyl-2-methylbutyryl)-4-tigloyl- α -L-arabinopyranosyl]-22-O-acetyl barringtogenol C)

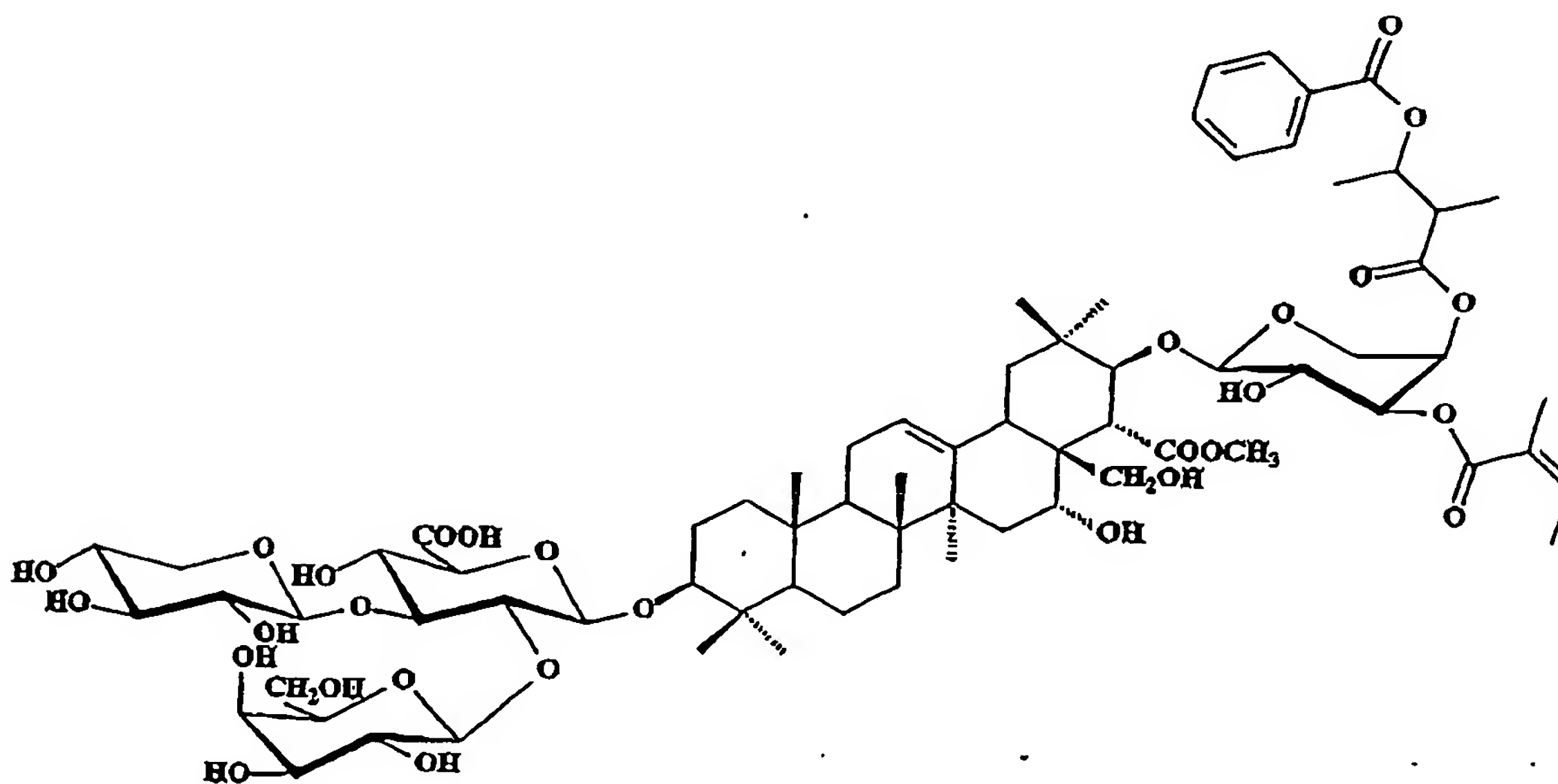


FIG 62 - Compound F70.3.5b

(3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3-tigloyl-4-(3-benzoyl-2-methylbutyryl)- α -L-arabinopyranosyl]-22-O-acetyl barringtogenol C)

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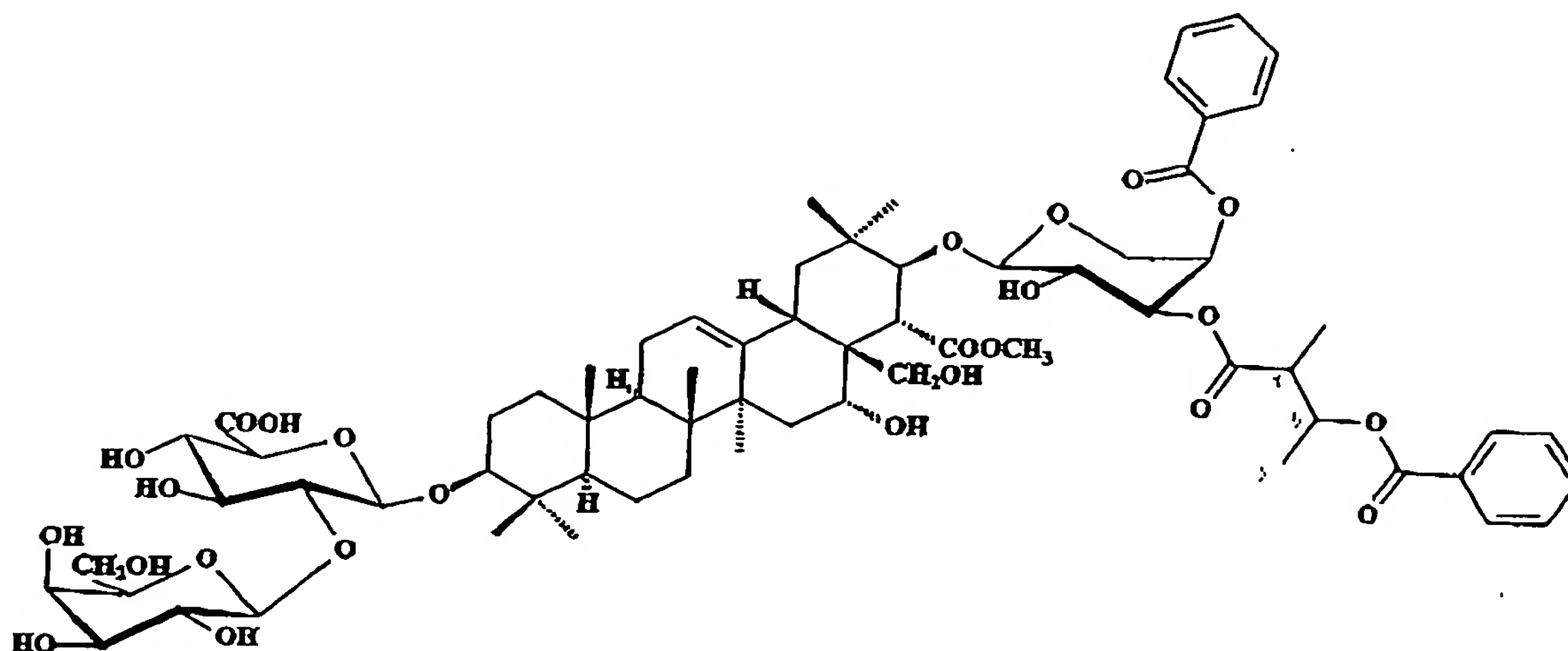


FIG 63 - Compound F70.3.7.2
 (3-O- β -D-galactopyranosyl(1 \rightarrow 2)- β -D-glucuronopyranosyl-21-O-[3-(3-benzoyl-2-methylbutyryl)-4-benzoyl- α -L-arabinopyranosyl]-22-O-acetyl
 barringtonol C)

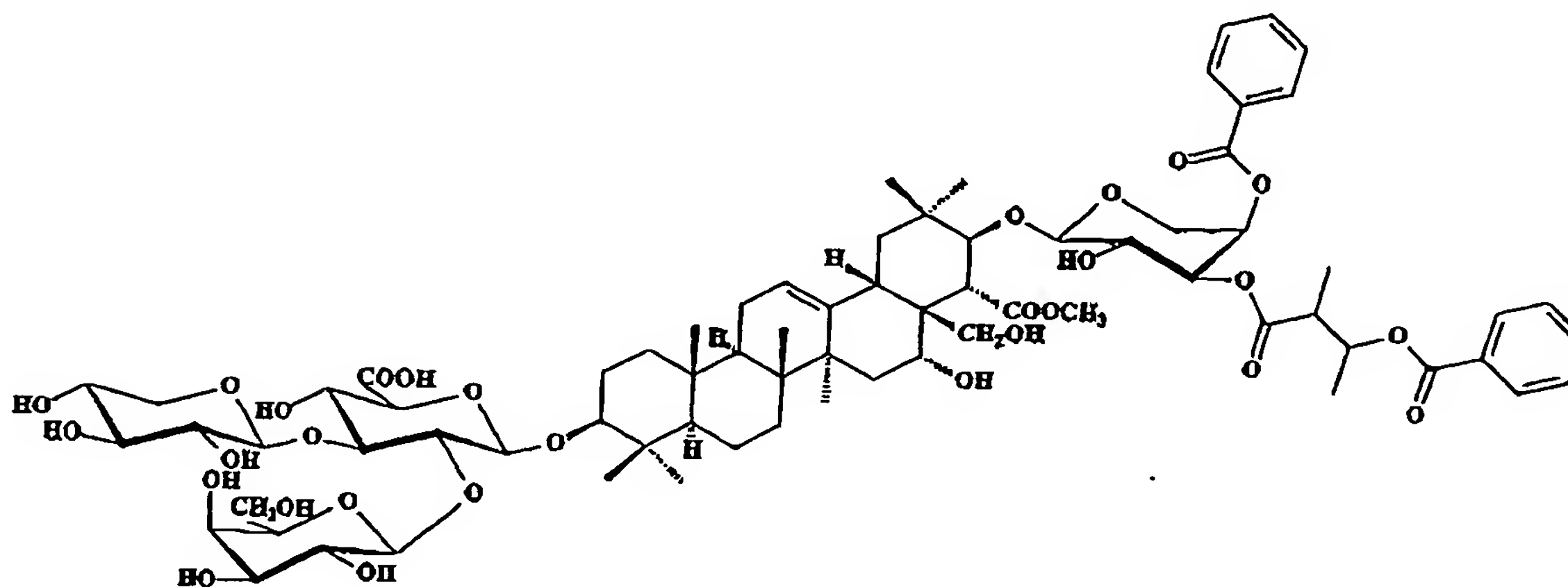


FIG 64 - Compound F80.4.5.2/F80.5.2
 (3-O- β -D-xylopyranosyl(1 \rightarrow 3)-[β -D-galactopyranosyl(1 \rightarrow 2)]- β -D-glucuronopyranosyl-21-O-[3-(3-benzoyl-2-methylbutyryl)-4-benzoyl- α -L-arabinopyranosyl]-28-O-acetyl barringtonol C)

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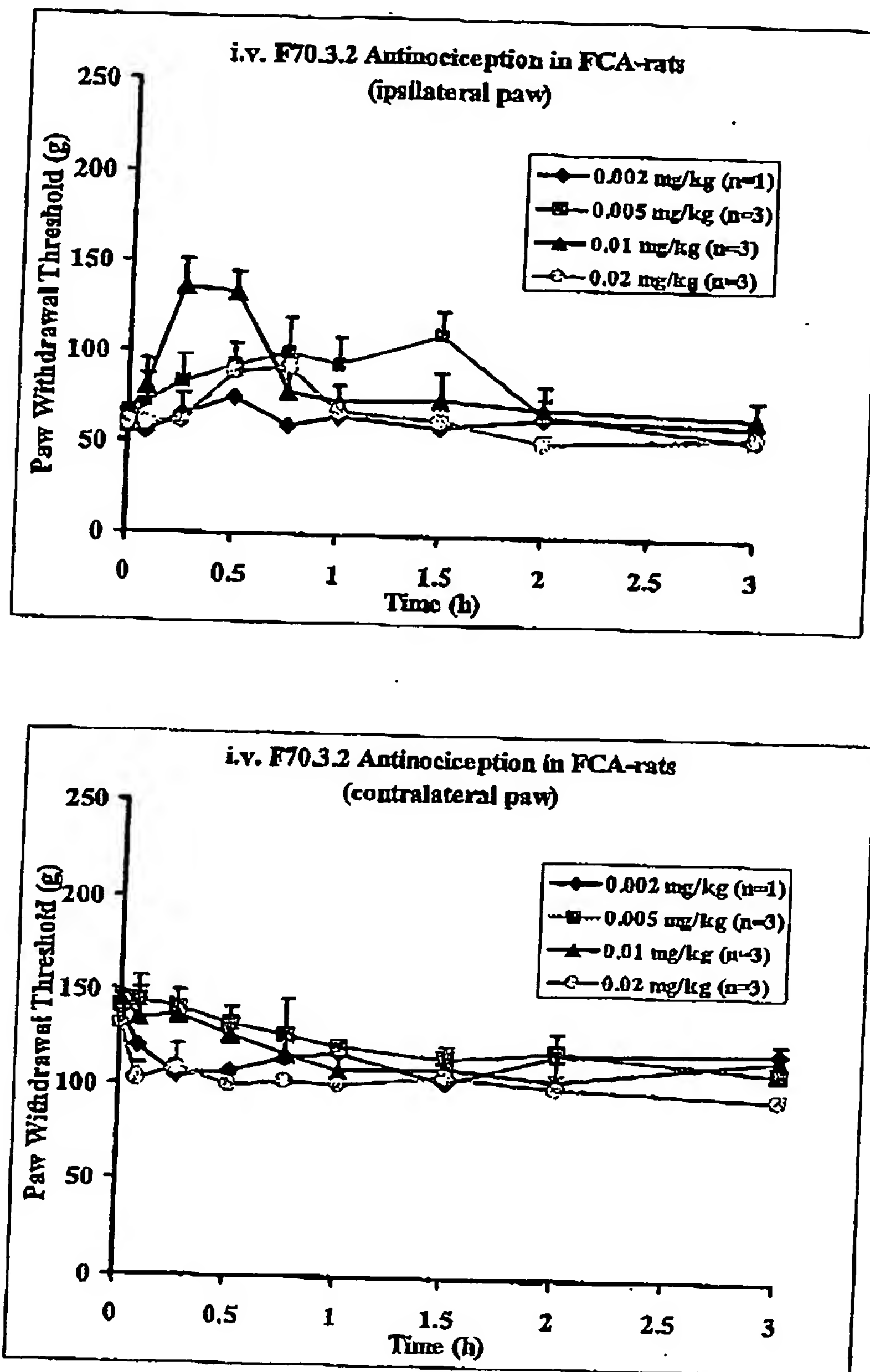
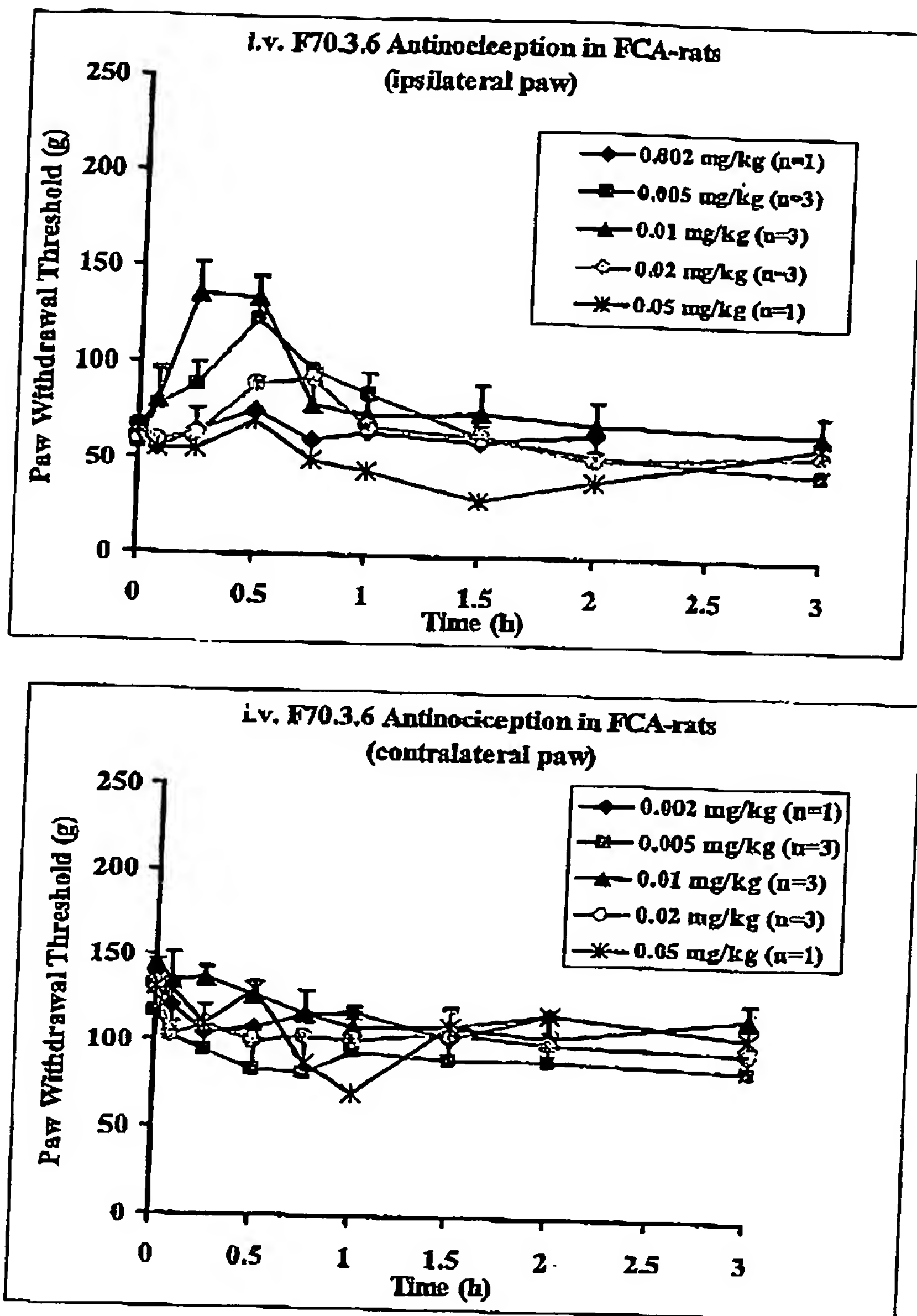


FIG. 65 is a graph of the mean (\pm SEM) paw withdrawal threshold versus time curves for (A) ipsilateral (inflamed) and (B) contralateral (non-inflamed) hindpaws of FCA-rats.

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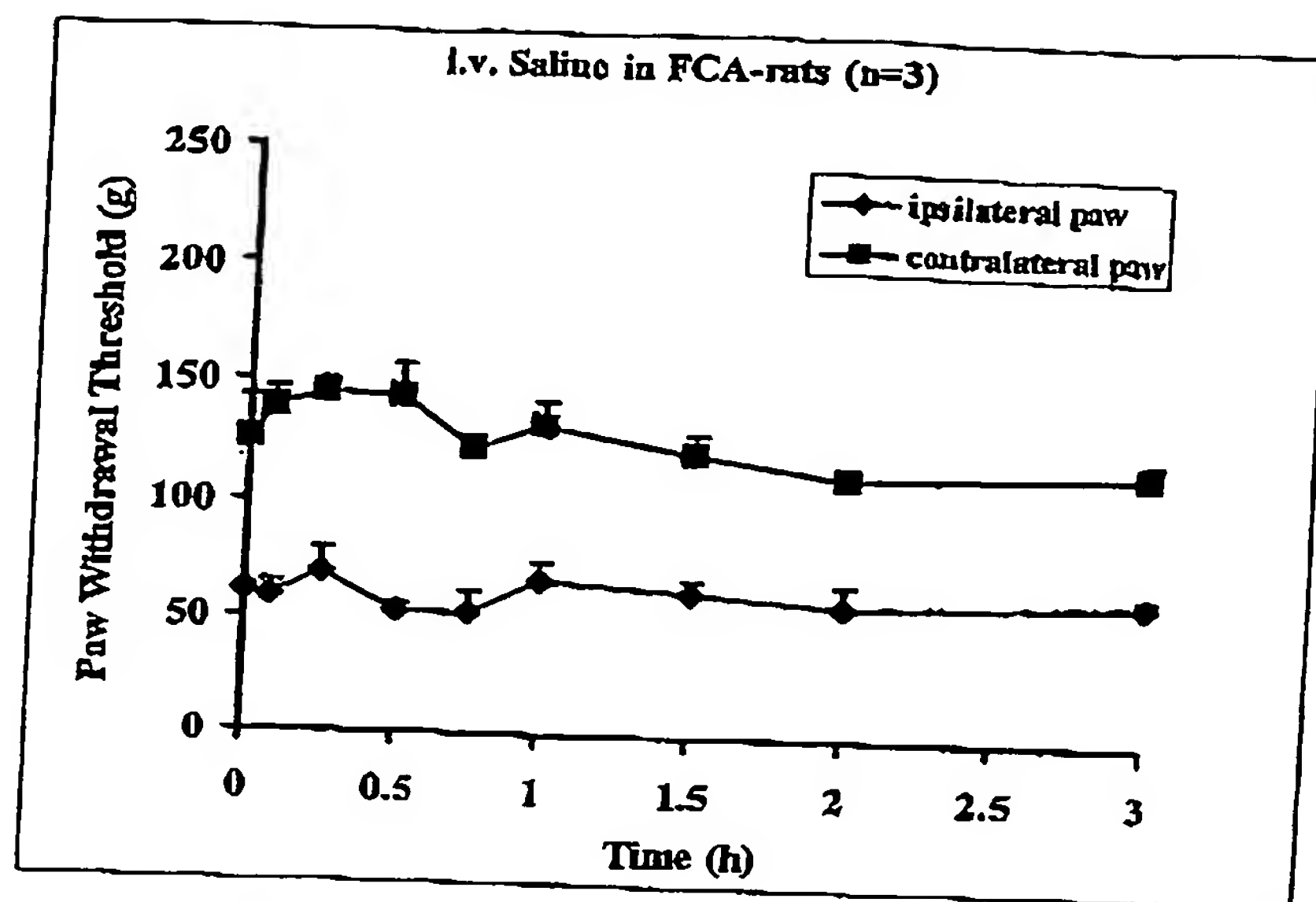


FIG. 67: is the mean (\pm SEM) paw withdrawal threshold versus time curve for the ipsilateral (inflamed) and the contralateral (non-inflamed) hindpaw in FCA-treated adult male Sprague-Dawley rats ($n = 3$) that received a single i.v. bolus of saline.

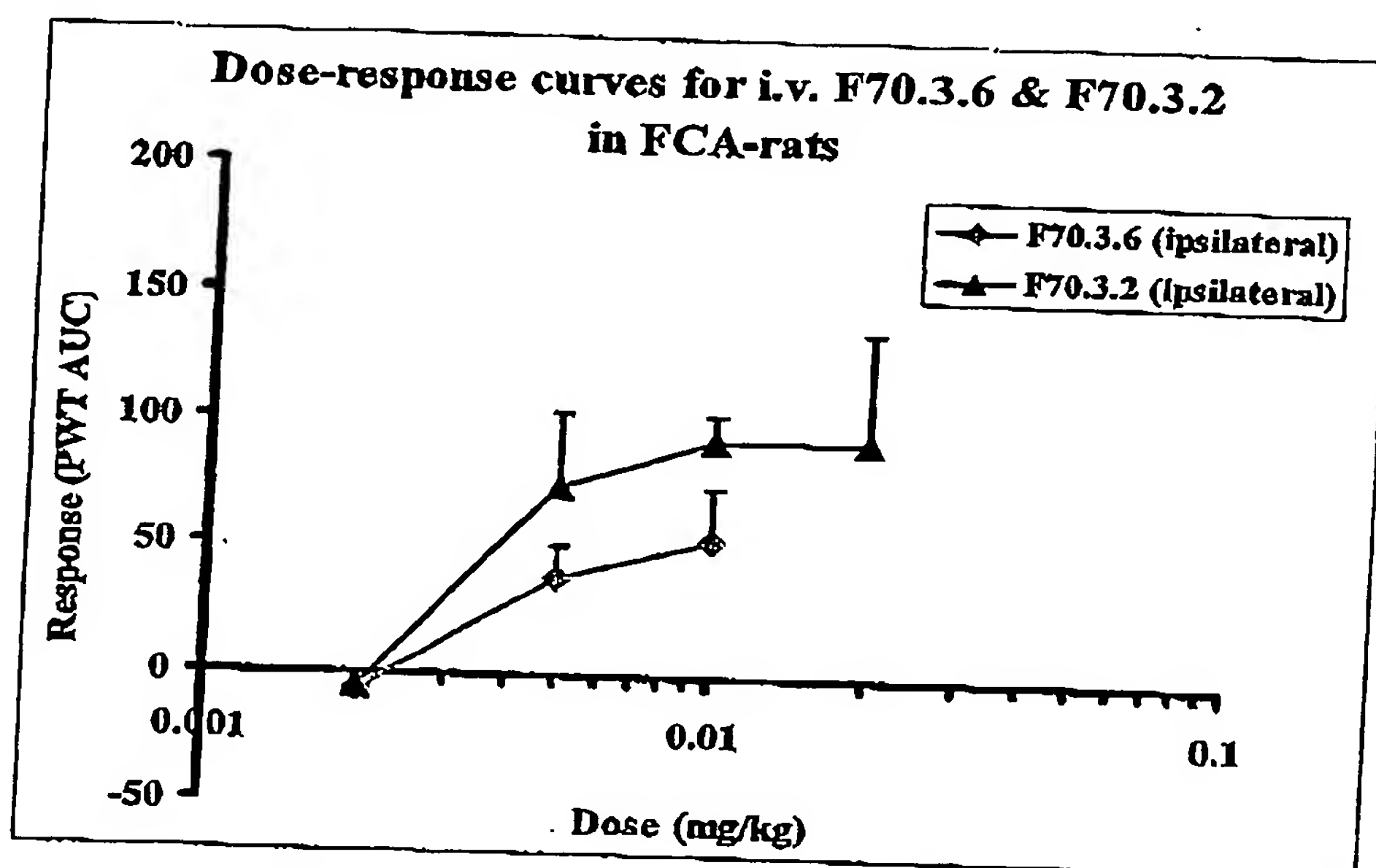


FIG. 68: Mean (\pm SEM) dose-response curves for the antinociceptive effects of i.v. bolus doses of F70.3.2 and F70.3.6 in the ipsilateral hindpaws of FCA-rats.

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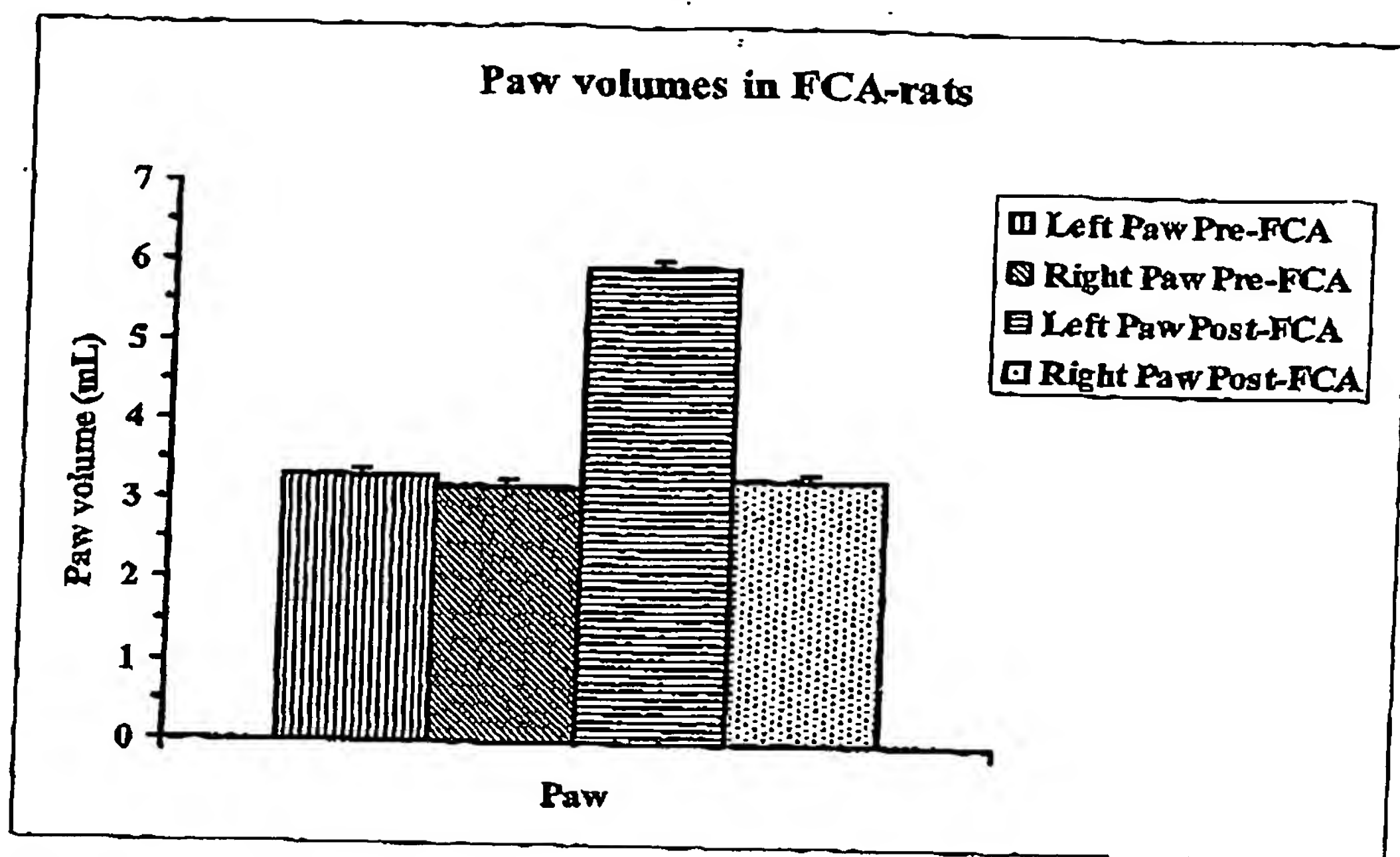


FIG. 69 Is a graph of the paw volume pre and post FCA treatment.